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A Historical-Comparative Reconstruction of Nilo-Saharan

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To Pat

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TABLES

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ACKNOWLEDGMENTS

ABBREVIATIONS

adj.	adjective, adjectival
assoc.	associative
Astab	Astaboran (branch of Eastern Sahelian)
attrib.	attributive
aux.	auxillary
BB	Bongo-Bagirmi (subgroup of West Central Sudanic)
caus.	causative
C.Jebel	Central Jebel (subgroup of Jebel branch of Kir-Abbaian)
coll.	collective
comp.	complementive
concis.	concisive
cont.	continuative
contin	continuant
CSud, CS	Central Sudanic (subbranch of Nilo-Saharan)
deadj.	deadjective
dem.	demonstrative
denom.	denominative
deriv.	deriving, derivative
deverb.	deverbative
Did.	Didinga
dispunc.	dispunctive
DM	Didinga-Murle (subgroup of the Surmic subgroup of Kir-Abbaian)
durat.	durative
E.	Eastern
ECS	East-Central Sudanic (branch of Central Sudanic)
ess.-act.	essive-active
ESah	Eastern Sahelian (branch of Sahelian)
excl.	exclusive
fem.	feminine
freq.	frequentative
gen.	genitive
hab.	habitual
ideo.	ideophone
imper.	imperative
incep.	inceptive
inchoat.	inchoative
incl.	inclusive

instr.	instrument, instrumental
intens.	intensive
intr.	intransitive
intens.	intensive
intr.	intransitive
iter.	iterative
Kir-Abb, KA	Kir-Abbaian (branch of Eastern Sahelian)
loc.	locative
masc.	masculine
MM	Moru-Madi (subgroup of East Central Sudanic)
modif.	modifier
n.	noun
N.	North, Northern
Nil	Nilotic (subgroup of Kir-Abbaian)
NS	Nilo-Saharan
NSud	Northern Sudanic (subbranch of Nilo-Saharan)
Nub	Nubian (subgroup of Astaboran branch of Eastern Sahelian)
nom.	nominal, nominalizing
PCS	proto-Central Sudanic
PESah	proto-Eastern Sahelian
PEN, PENil	proto-Eastern Nilotic
PKA	proto-Kir-Abbaian
pl.	plural
plurac.	pluractive
PNil	proto-Nilotic
PNS	proto-Nilo-Saharan
PNSud	proto-Northern Sudanic
poss.	possessive
pref.	prefix
prog.	progressive
pron.	pronoun, pronomial
PRub	proto-Rub
PSah	proto-Sahelian (branching of Saharo-Sahelian)
PSS, PSahSah	proto-Saharo-Sahelian
PSN, PSNil	proto-Southern Nilotic
PSud	proto-Sudanic (primary branching of Nilo-Saharan)
PTrSah	proto-Trans-Sahel (branching of Sahelian)
punc.	punctive
PWN, PWNil	proto-Western Nilotic
recipr.	reciprocal
redup.	reduplicated, reduplication
rel. pron.	relative pronoun

S.	South, Southern
Sah-Sah	Saharo-Sahelian (branch of Northern Sudanic)
SESurmic	Southeastern Surmic (Southern Surmic branch)
sing.	singular
singul.	singulative
SNil	Southern Nilotic
SnKoman	Southern Koman
S.Surmic	Southern Surmic
suff.	suffix
suppl.	suppletive
SWKoman	Southwestern Koman
SWSurmic	Southwestern Surmic (Southern Surmic branch)
tr.	transitive
v.	verb
ven.	venitive
WAstab	Western Astaboran (branch of Astaboran)
WCS	West Central Sudanic
WDaju	West Daju
Wn Rub	Western Rub
WNil	Western Nilotic

CHAPTER 1

INTRODUCTION

The Nilo-Saharan family of languages comprises a far-flung grouping, extending across several thousand kilometers of Africa, from Songay spoken along the great bend of the Niger River eastward to the Koman, Kunama, and Nara languages of western Ethiopia and southward to the various Nilotic languages of Kenya and northern Tanzania. Its status as a language family was first posited a little more than a quarter century ago by Joseph Greenberg (1963). Its validity soon came widely to be accepted by linguists of African languages, although individual aspects of this relationship, such as the status of Songay, continued to be disputed. The comparative-historical reconstruction of several subgroupings within the family also soon drew scholarly attention (Ehret 1968, 1971, 1981b; Heine 1976; Cyffer 1981; Rottland 1982; Vossen 1982; Thelwall 1981; Dimmendaal 1983, 1984; Hieda 1983, 1986; and others). And a number of works both written and edited by M. L. Bender explored widespread features in the family and made available the contributions of numerous other scholars (Bender 1976, 1983a, 1983c, and 1989c, *inter alia*).

But the systematic verification of that relationship across the whole of the family through the establishment of regular sound correspondence patterns began only during the 1980s (Ehret 1981a, 1983b). This monograph builds on these efforts and on new sources published in the 1990s, providing a reconstruction not only of the consonants, vowels, and tones of proto-Nilo-Saharan, but of the history of derivational morphology, number marking, case, tense-aspect marking, and pronouns in the Nilo-Saharan family.

The core of the analysis forms the next seven Chapters, 2-8. Chapter 2 takes up the reconstruction of the consonants; Chapter 3 deals with vowel and tone. Chapter 4 explores the internal relationships of Nilo-Saharan, establishing a particular subclassification in detail from several mutually corroborating lines of evidence. Chapter 5 lays out early Nilo-Saharan verb derivational morphology; Chapter 6, the nominal derivational affixations; and Chapter 7, the reconstructible number, case, and conjugational marking. Along the way, each of these three chapters takes note of historical developments within the

various morphological systems. Chapter 8 rounds out this effort with a proposed history of the pronoun systems of the family.

Chapter 9 then introduces the final section of the work, the Nilo-Saharan Etymological Dictionary, comprising more than 1600 roots, with explanatory notes and with attested reflexes in different particular languages. More than 10,000 of those reflexes are directly cited here. The discussions and arguments of Chapters 2-8 all ultimately rest on these systematically arranged data.

The evidence and arguments developed in the various sections of the book map out a family remarkably close in its composition and in some aspects of its internal relationships to that first postulated by Greenberg. No grouping equivalent to his Chari-Nile branch of the family can be sustained, but an Eastern Sahelian subgroup must be postulated, with almost exactly the membership that Greenberg envisioned for his Eastern Sudanic. The new name, Eastern Sahelian, has been chosen here for that subgroup, however, because it has a better logical fit in the subclassification of the family (for the overall naming system used, see Chapter 4).

The question of Songay's relationship can now be considered settled. It clearly fits within the family, not as a distant outlier or as some kind of hybrid, but as a strongly proven, integral member of one of the mid-level branchings of the family. Its membership is attested by a great number of regularly corresponding reflexes of proto-Nilo-Saharan roots (see Etymological Dictionary and Chapters 2 and 3) and amply verified by morphology and pronoun derivations (see Chapters 5-8). The fact that even elements often cited as evidence of Mande (Niger-Congo) connections for Songay are better explained as Nilo-Saharan in origin—e.g., certain verb markers, cited in Creissels 1981, but accounted for here in Chapter 7, or the Songay reflex of root 474, which we can now see to have been borrowed into Malinke-Bambara—tells us that it may have been Songay which influenced Mande in earlier eras, rather than the other way round.

The overall case presented here for Nilo-Saharan shows its strength in the fact that it works simultaneously on several levels. The key feature of any successful explanatory framework (scientific theory) is that it resolves a variety of correlative matters and not just the original issue around which it was designed.

Now the first focus of historical reconstruction in Nilo-Saharan, as in any language family, must be the establishment of regular sound correspondence patterns across the family and, contemporaneously, the reconstruction of proto-Nilo-Saharan vocabulary. A salient correlative feature of such a phonological reconstruction is that it allows phonological histories of each language to be proposed. By determining whether the sounds of a particular root word in a particular language deviate from or conform to the regular sound history of the language, one can then establish whether the word was borrowed into the language or was part of its direct, long-term inheritance from its proto-language. The power of the reconstruction presented here is evident in its recurrent capacity for identifying major sets of word borrowings from one Nilo-Saharan language into another—words identifiable as loans because they possess the characteristics sound shifts of one Nilo-Saharan subgroup or language but are found today in another language altogether. Among the most striking, but by no means the only such sets are

(a) the numerous words borrowed into proto-Luo and into other Western Nilotic languages from the Koman group (root 832 provides one of a number of examples in which both an inherited and a borrowed form of the same root appear in a Western Nilotic tongue);

(b) a cluster of words, previously unsuspected, of apparent Daju origin in Bari of Eastern Nilotic (e.g., root 893, where both an inherited and a borrowed shape of a particular root word occur);

(c) a wide range of word borrowings in Bertha, some deriving from Koman and some from the Gaam group;

(d) a considerable set of words borrowed from early Western Rub into proto-Ateker of Eastern Nilotic;

(e) a major set of words borrowed from early Southern Nilotic into the Rub language group, along with a similarly notable set of words borrowed the other way, from Rub into Southern Nilotic (root 1164 provides an instance in which a Rub language has both an inherited and borrowed form of the same root); and

(f) several significant bodies of Central Sudanic loanwords in Bari and other Eastern Nilotic languages.

The validity of the correspondence patterns among the Nilo-Saharan languages, laid out in Chapters 2 and 3, can also be reconfirmed in another manner. They allow us to clarify the tangled surface appearances of some of the pronouns and the markers of case. As we discover in Chapter 8, the reflexes of certain distinct early Southern Nilotic pronouns, most notably the two first person singular independent forms *aɠa and *kʰah (roots 434 and 1586), can easily be confused if we rely on a partial rather than a comprehensive and systemic consonant reconstruction. And as we find out in Chapter 7, it is similarly easy to confuse three distinct Nilo-Saharan relational morphemes—each of which came mark possession in different later languages and in each of which the consonantal element was a labial—and to assume wrongly that only one morpheme was involved (see roots 47, 86, and 96 in the Etymological Dictionary).

In other words, the evidence, arguments, and formulations for Nilo-Saharan reconstruction provided in Chapters 2-8 offer what a strong explanation should provide—interlocking and mutually confirmatory results that generate answers to questions and solutions for issues not conceived of in the initial formulation of problem.

Some languages of the family are well attested indeed, in quality or quantity of evidence or both—it is these that provide the fundamental resources for the overall systematic reconstruction. They make this study possible because they constitute a numerous, representative selection from each distant branch of the family: Uduk from the Koman branch; numerous Central Sudanic languages (usually represented here by proto-Central Sudanic or proto-East Central Sudanic root reconstructions from Ehret MS, available on request); Kanuri from the Saharan group; Kunama, Songay, and For from their respective single-language branches; and Dongolawi, Nobiin, Diling, Gaam, Bertha, Ik, Soo, and many of the Nilotic languages for Eastern Sahelian. This work depends, too, on several existing intermediate reconstructions—of the Eastern and Southern Nilotic, Rub (Kuliak), Daju, and Central Sudanic groups. Several less well-studied languages have been taken into account in the numerous tablings of data and in the findings, providing us a provisional sense of how these languages fit into the history of their various subgroups. But the determinative evidence for the reconstruction comes from the many well-attested languages.

There is perhaps one, fairly specific lesson to be noted here. In historical reconstruction by linguists, one often encounters a confusion about the enduring scientific principle of Ockham's razor. This principle requires us to chose the explanation that most simply accounts for the observed results. But "most simply" is relative. It does not mean that the phonological system we reconstruct should always be simple in some absolute way. The explanation that most simply accounts for the data may necessitate, for instance, a relatively large number of consonants, as the Nilo-Saharan evidence does.

More particularly for Nilo-Saharan, the lesson is this: we cannot assume that simpler consonant inventories are original and that more complicated ones are secondary. Only full, systemic comparison can resolve the matter. To do otherwise is to prejudge the case and foreclose essential avenues of inquiry. In the Nilo-Saharan family, at least one branch, Central Sudanic, did increase the number of its consonants. In most other branches of the family, consonant mergers tended to predominate, shrinking the inherited inventory very little in some languages, such as Uduk, and a lot in some others, most especially in proto-Southern Nilotic, which ended up with just fourteen consonants in all.

THE CONSONANTS OF PROTO-NILO-SAHARAN

Consonant articulations

The consonants of proto-Nilo-Saharan (hereinafter PNS; see Table 1.1 for this and other abbreviations) formed a relatively complex system, but a system the contours of which were apparent even before extensive and detailed comparative work was undertaken (Ehret 1981a and 1981b). The number of consonants in modern-day Nilo-Saharan languages ranges from as few as thirteen (in some Kalenjin dialects) to well over forty (in some Central Sudanic tongues). Recurrent features of the consonant inventories of distantly related and often geographically remote languages made it clear, however, that the dominant drift of Nilo-Saharan phonological history had been toward simplification of an originally numerous array of consonants.

Up to five potential positions of stop articulation—labial, dental, alveolar, prepalatal, and velar—are separately indicated in Koman, Nilotic, and Central Sudanic divisions of the family. The Koman, Central Sudanic, and Rub ("Kuliak")[1] languages had as well at least four manners of stop release: voiced glottalic (implosive), voiced non-glottalic, voiceless glottalic (ejective), and voiceless non-glottalic. Comparative study, once begun, quickly turned up patterns of one-to-one sound correspondence between these features in the languages that had them. Already in Ehret 1981 such patterns could be discerned—i.e., velar ejective /k'/ in Rub words matched up with /k'/ in cognate Koman and Central Sudanic roots, Rub implosive /ɗ/ corresponded to /ɗ/ elsewhere, and so forth. Clearly these features reflected not some early areal influences but fundamental distinctions of PNS phonology. As the comparative reconstruction proceeded, additional consonant distinctions not at first suspected also emerged from the data.

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[1] A new name, Rub, meaning "human being" in the proto-Rub language, had to be chosen for the closely related Ik, Soo, and Nyang'i subgroup of languages, in place of the name formerly used by linguists, Kuliak. That name has the pejorative meaning "paupers" in the Karimojong language of their neighbors.

PNS voiced stops

The most straightforward reconstructions are of the PNS nasal consonants. In nearly all the Nilo-Saharan languages, four nasals occur—/m/, /n/, /ɲ/ (often represented by the digraph *ny*), and /ŋ/—and the one-to-one correspondence of *m* with *m*, *n* with *n*, and so on, from language to language across the family shows that almost everywhere these phonemes preserve the PNS consonant values. PNS *m and *n have, in fact, undergone almost no sound shifts in any environments, and only in a very few languages have *ɲ and *ŋ been lost or become restricted in their occurrence. These few cases involve languages, such as Nara in Ethiopia, the Nile Nubian tongues, and Kanuri, spoken in regions of strong and often ancient areal influence from Afroasiatic languages, in which these two nasals are generally missing or at best very rare.

A fifth nasal, dental /ṇ/, has been recorded in Temein and in Majang (Bender 1971), where it appears to be a secondary development (see PNS root 1437), and is found in Naath ("Nuer"), Jyang ("Dinka"), and Ocolo ("Shilluk") of Western Nilotic, where it occurs in a limited number of environments. That it is also a secondary development in Western Nilotic remains to be fully demonstrated. But it cannot at present be traced any further back in Nilo-Saharan as a whole.

The glottalic and non-glottalic voiced stops of PNS have not uncommonly fallen together in the modern languages, most often as normal non-implosive stops, as the considerations of naturalness would lead one to expect. In Maasai and some other Eastern Nilotic languages, on the other hand, their common outcomes are implosive. But wherever the plus- and minus-implosive distinction has been maintained, the reconstructibility of two series of PNS voiced stops is clear. The straightforward cases are those of *ɓ and *ɗ, which consistently produce /ɓ/ and /ɗ/ in the languages that maintain the distinction, whereas *b and *d in those languages yield /b/ and /d/.

The demonstrations of PNS *ɗ and *ɟ are more indirect.

The prepalatal *ɟ has widely fallen together with reflexes of PNS *d or *ɗ in different languages, suggesting that it may have been a prepalatal rather far forward in its position of articulation. It remains a distinctly palatal implosive today only in the Rub languages, but produced non-implosive palatal reflexes in Maba and For. The Songay reflex /z/ of PNS *ɟ surely also derives from an earlier prepalatal with affricate articulation, [ĵ], which in turn would have derived from a previous stop pronunciation, [j]. The equivalent PNS *non-implosive, *d, much more generally than *ɟ produced prepalatal and palatal out-

comes in the modern languages. But while its prepalatal locus of articulation is clear, its origin as a stop is obscured by the frequency with which its present-day reflexes are fricatives. In the end, it is the systemic patterning of the PNS voiced stops and the considerations of natural directions of sound shift that dictate the postulation of *ɗ and *d as the prepalatal correlatives of *ɓ and *b and *ɗ and *d.

The distinction least preserved is that between PNS *ɟ and *g. Only in Soo and sometimes in Ik, and possibly rarely in Mangbetu of Central Sudanic, does the distinction overtly persist. Proto-Central Sudanic (PCS) maintained *ɟ and *g as separate phonemes, although the two have fallen together in nearly all the modern Central Sudanic languages (Ehret, MS). Distinctive outcomes for the two are also apparent in Nubian, PNS *ɟ producing Nubian *g, but PNS *g palatalizing to Nubian *j. Almost everywhere else in the family, reflexes of *ɟ and *g cannot be distinguished.

The fifth position of voiced stop articulation, dental, appears to have lacked the glottalic/non-glottalic opposition. Only non-implosive PNS *ḍ can be reconstructed. The postulation of this stop rests on the evidence of those subgroups that have maintained distinctive dentals, most notably Uduk of Koman and the Western Nilotic tongues. The one identified case of PNS *ḍ in Maba has /j/ as its reflex of the dental stop (root 179): a quite plausible outcome since there seems to be a recurrent natural connection of palatal and dental positions in the world's languages, as well as elsewhere in Nilo-Saharan. But more data is needed to see if /j/ is the fully regular Maba outcome of PNS *ḍ. In a majority of Nilo-Saharan languages, however, PNS *ḍ and *d have fallen together as a regular consequence of the deletion of the feature [+dental] from the phonology.

A further stop series, of PNS prenasalized *mb, *nd, *nḍ, and *ŋg, is also required by the comparative evidence. Note that, as for the implosives, no equivalent dental member of the set can be reconstructed (at least as yet). The prenasalized stops are maintained in a quite different scatter of languages from those that preserve the glottalic/non-glottalic opposition. They appear in Kanuri, Maba, Nara, Tama, and almost all Central Sudanic tongues, among others. They are to be interpreted as unit phonemes rather than clusters because they occur in all stem consonant positions, unlike the prenasalized voiceless stops of PNS (considered below among the voiceless stops). In most Nilo-Saharan languages that lack them, the voiced prenasals have fallen together with the equivalent non-glottal, oral voiced stops; in a few cases they have collapsed instead with the equivalent simple nasal, e.g., PNS *mb > proto-Nilotic *m. Uniquely in proto-Rub in non-

initial environments, PNS *NC became the corresponding implosive stop: PNS *mb > Rub *ɓ /V_, for example.

The following sample of the Nilo-Saharan correspondences among the voiced stops (Table 2.1) illustrates the kinds of patterns of sound correspondence that exist in stem-initial environménts and provides the diagnostic evidence for the reconstructible etymons of each correspondence set. (The Central Sudanic citations are of the PCS consonants as reconstructed in Ehret, MS).

Table 2.1.   Sample of Nilo-Saharan voiced stop correspondences

PNS	Uduk	CSud	Kunama	Kanuri	Songay	Maba	Nara	WNil	Ik
*ɓ	ɓ	*ɓ	b	b	b	b	b	b	ɓ
*ɗ	ɗ	*ɗ	d	d	d	d	d	d	ɗ
*ɗ̣	d, j	*ɗ̣	d	d	d	j	d	d	'j, z
*ɠ	g	*ɠ	g	g	g	g	g	g	ɠ
*b	b	*b	b	b	b	b	b	b	b
*ɖ	ɖ	*d	d	d	d	j	d	ɖ	ɗ, d
*d	d	*d	d	d	d	d	d	d	d
*ɖ̣	j	*ɖ	š	z	z	j	s	j	'j, dz
*g	g	*g	g	g	g	g	g	g	g
*mb	b	*mb	b	mb	b	mb	mb	m	b, m
*nd	d	*nd	d	nd	d	nd	nd	d	d
*nɖ	d	*nẓ	š	nj	z	(?)	(?)	j	'j, ɲ
*ŋg	g	*ŋg	g	ŋg	g	ŋg	ŋg	ŋ	g, ŋ
*m	m	*m	m	m	m	m	m	m	m
*n	n	*n	n	n	n	n	n	n	n

PNS	Uduk	CSud	Kunama	Kanuri	Songay	Maba	Nara	WNil	Ik
*ɲ	ɲ	*ɲ	ɲ	n	ɲ	ɲ	n	ɲ	ɲ
*ŋ	ŋ	*ŋ	ŋ	ŋg	ŋ	ŋ	n	ŋ	ŋ

The correspondences of these consonants in non-initial environments are complicated by various kinds of lenition (e.g., *ɓ and *b > [v]~ [w] /V_V in Kanuri), by levelling of voice distinctions in other cases, and by collapsing of glottalic with non-glottalic reflexes in still other instances. These patterns are dealt with in the general tables of consonant correspondences with which this chapter closes (Tables 2.9 and 2.10).

PNS voiceless stops

Although the parallel occurrence of the glottalic/non-glottalic opposition in the PNS voiceless as well as voiced stops was apparent from the first (Ehret 1981a), what was not clear until the detailed investigation had begun was that the voiceless stops in fact partook of a three-way distinction—glottalic, aspirated, and unaspirated. Only one Nilo-Saharan language, Uduk, has fully maintained the PNS voiceless stops, but the distinctive correspondence patterns marking each of these consonants show that the three-way contrast was not a creation of Uduk alone, but an old PNS feature. The Uduk consonant in each case approximates the most plausible source form for each correspondence set and so can be seen as closely resembling, even if not perhaps exactly preserving, the PNS etymon. Where Uduk has a non-aspirated stop, for instance, a not uncommon outcome elsewhere is the equivalent voiced stop; e.g., Uduk /t/ = proto-Nilotic (and WNil) *d. Voicing is a natural direction of change because a non-aspirated /t/ is usually articulated as a tense stop, alike to [d] except in its lack of voicing. In contrast, an Uduk aspirated stop in initial position almost always corresponds to voiceless reflexes in other Nilo-Saharan tongues, as would be expected of a minus-tense consonant; while Uduk ejectives match up with ejectives in any other Nilo-Saharan languages that preserve such consonants.

Table 2.2, a sampling of the key correspondences in word-initial position, using a slightly different set of languages from those in Table 2.1, lays out the diagnostic evidence for the reconstruction of the PNS voiceless stops.

Table 2.2. Sample of Nilo-Saharan voiceless stop correspondences

PNS	Uduk	CSud	Kanuri	Songay	Maba	Gaam	Bertha	WNil	Rub
*p	p	*p	b	b	b	p	b	b	*b
*pʰ	pʰ	*p	f	f	f	f	f	p	*p
*p'	p'	*p'	b	b	b	b	p'	p	*ɓ
*t̪	t̪	*t	t	t	d	t	d	t̪	*t
*t̪ʰ	t̪ʰ	*t	t	t	d	t	θ	t̪	*t
*t̪'	t̪'	*t'	t	t	d	t	s'	t̪	*c'
*t	t	*t	d	d	t	t	d	d	*t
*tʰ	tʰ	*t	t	t	t	t	θ	t	*t
*t'	t'	*t'	t	d	d	t	s'	t	*c'
*ʈ	c	*ʈ	t	t	č	c	θ	c	*c
*ʈʰ	cʰ	*c	c	t	č	c	θ	c	*c
*ʈ'	c'	*ʈ'	s	t	(?)	ʈ	s'	c	*c'
*k	k	*k	k	g	g	k	h	k	*k
*kʰ	kʰ	*k	k	k	k	k	h	k	*k
*k'	k'	*k'	k	h	k	k,Ø	k'	k	*k'

As with the voiced stops of PNS, a variety of levelling shifts in non-initial environments, especially those collapsing distinctions of voicing, complicate the correspondence patterns of the voiceless stops. For these, see again the full tabling of PNS consonants at the end of the chapter (Tables 2.9 and 2.10).

Prenasalized varieties of the voiceless stops can also be reconstructed for PNS. Found, however, only in post-vocalic contexts in words, and often analyzable into sequences of stem-final nasal conso-

nant plus a suffix composed of a voiceless stop, these have to be treated as clusters of two reconstructible phonemes and not, like PNS *mb, *nd, *nḍ, and *ŋg, as unit phonemes.

An additional, sixth locus of stop articulation, labial velar, is likely to have existed at one time in the *pre*-proto-Nilo-Saharan language (pre-PNS). A full range of phonemic voiced and voiceless stops would have filled that slot: *gʷ, *ɟʷ, *ŋgʷ, *kʷ, *kʰʷ, and *k'ʷ. But by PNS times such consonants had been subsumed into a wider set of *Cw sequences that had developed in the PNS language, deriving from uncertain antecedants, and in which *C could be almost any of the PNS consonants. The phonemic distinctiveness of the erstwhile labial velars had therefore been lost in PNS.

Two features of their PNS occurrence patterns testify, however, that they formerly constituted a separate phonemic set. Firstly, *Cw sequences tend to be notably more frequent when C is velar than when it is not. Over 25% of the voiced-velar-initial stems in the reconstructed Nilo-Saharan vocabulary (over 30% if *ŋ is neglected) are in fact *Cw initial; with one exception, PNS *d, the rest of the voiced stops have an under-20%, and most an under-10%, rate of *Cw shapes in that environment. For the voiceless velar stops, this criterion is less telling; about 11% of voiceless-velar-initial roots begin actually in *Cw. This figure is indeed markedly higher than the proportion of *Cw sequences among the rest of voiceless-stop-initial roots taken as a whole. But three individual non-velars, PNS *t', *t̪, and *ʈ', do have distinctly higher percentages, at least in the available data, of *Cw occurrences than of *k, *kʰ, and *k'.

A second distributional feature consistently sets off the velar cases of *Cw from the rest, however—PNS velar stops can occur followed by *w in stem-final as well as initial position, whereas no other consonant on present evidence can do so. Labialized velars, in other words, could appear in both the regular PNS stem positions, consistent with their having once been phonemes distinct from simple velars; while all other cases of *Cw show a defective, initial-only pattern of occurrence, indicative of their secondary derivation from some other kind of generating conditions in pre-PNS.

PNS fricatives

Fricative phonemes can be reconstructed for only three of the positions of stop articulation, the dental, alveolar, and prepalatal. The dental locus of PNS *θ has been maintained in just one Central Sudanic language, Baledha (Balendru), and in Bertha and Western

Nilotic, but is indirectly implied also by its distinctive outcomes in several other languages, notably in Uduk and Kunama where it produces a palatal or prepalatal fricative. PNS alveolar *s and prepalatal *ş are more often retained in forms resembling their probable PNS values. A single voiced fricative, PNS *z, was probably alveolar in its articulation, although in Western Nilotic its reflex is a voiced dental.

A fifth, prenasalized and voiced fricative phoneme, *nð, needs also to be postulated. At the proto-Saharo-Sahelian (PSS) stage in the evolution of the family (see Chapter 4 for demonstration of the subclassification followed here), it had become articulated as *nz, since in the descendant languages of that branching its reflexes consistently run parallel in articulation to those of PNS *z (Table 2.3 below). But in the three language groups—Koman, Central Sudanic, and Kunama—that derive from earlier branchings of the family, the evidence requires a different PNS articulatory positioning for *nð. In Kunama it fell together with PNS *θ as /š/, indicating a pre-Kunama dental locus of articulation, while in PCS it produced a palatal outcome, represented here as *nj. The evidence of Uduk is ambiguous as to its pre-Koman point of pronunciation: there *nð, like *both* PNS *θ and *š, yielded /š/, at least word-initially. What is clear from these data is that in PNS *nð was pronounced as either a prepalatal or a dental but not as an alveolar [nz].

The simplest and therefore preferable history of sound-shift, however, and one nicely in keeping with the subclassification developed in Chapter 4, is that PNS *nð began as a dental prenasal, fricative in its manner of airflow to account for its near universally fricative outcomes in modern Nilo-Saharan tongues, and that it remained thus pronounced throughout the subsequent proto-Sudanic and proto-Northern Sudanic (PNSud) stages. Its Uduk and Kunama outcomes would thus follow simply from the same sound-shifts that affected the other PNS dental fricative, *θ, in those languages. For the PSahSah daughter of proto-Northern Sudanic, only a single sound change, from *nð to *nz, need be postulated, after which its history paralleled that of PNS *z in the various Saharo-Sahelian languages. In PCS again only a single sound shift, moving *nð from dental to palatal articulation, is required.

The articulatory ease of shifts between dental and palatal position is widely attested in the world's languages. The most common direction is from palatal to dental; e.g., the cases of Castilian /θ/, the dental consonants of Swahili and Makua in eastern Africa, and the dental outcomes of PNS *ţ and *ţʰ in Bertha in Table 2.2. But as other Nilo-Saharan examples presented in this chapter show, e.g., the Uduk and

Kunama outcomes for PNS *θ above and the Nilotic reflex of PNS *ļ below, the opposite direction of shift is also possible.

Interestingly, the PNS fricatives all became stops in proto-Nilotic. Thus, *except* in certain limited environments in some Eastern Nilotic languages, any words or morphemes in a Nilotic language that contain /s/ must be considered loans. Proto-Nilotic was, like some modern Western Nilotic tongues, a language without fricatives.

The diagnostic correspondences of the PNS fricatives in word-initial position are illustrated in Table 2.3.

Table 2.3.   Sample of Nilo-Saharan fricative correspondences

PNS	Uduk	CSud	Kunama	Kanuri	Songay	Bertha	WNil	Rub
*θ	š	*θ	š	s	s	θ	ţ	*s
*s	s	*s	s	s	s	š	t	*s
*ş	s	*ş	s	s	s	θ	c	*ş
*z	s	*z	s	z	s	z	ḍ	*s
*nð	š	*nj	š	nz	z	z	ḍ	*s

PNS liquids

Of the three liquids reconstructible for PNS, two are uncomplicated postulations. PNS *l must be seen as the etymon of a correspondence set that gives /l/ generally, but not quite universally, across the family. The major exceptions are Rub, in which PNS *l rather unexpectedly produced proto-Rub *ł, and Nubian, in which the reflex of *l in initial position was *d. PNS *l also yields flap reflexes non-initially in one branch of the Surmic group and in Nyimang. The flapped consonant of PNS, *r, more commonly produces divergent reflexes in word-initial position than does PNS *l. In that environment *r became /d/ in Kunama and Songay, yielded /d/~ /d/ in Daju, and dropped out entirely in Nubian. But nearly everywhere else it remains simply /r/.

The third liquid, PNS *ļ, is a considerably less straightforward postulation. In a great many Nilo-Saharan languages its reflexes have fallen together with those of *l. Generally in Uduk, Nilotic, and Rub, however, and non-initially in Gaam among others, distinctive out-

comes for *ḷ appear. The representation chosen here for it, with a dental diacritic, aligns it with the similarly marked dental stops and fricatives. Overtly dental reflexes of the consonant appear in Uduk of the Koman branch and in Gaam of the Eastern Sahelian subgroup. In Uduk *ḷ is realized as a dental stop [ḍ] word-initially; and word-final in pre-Uduk it probably also formerly produced *[ḍ], since its present-day Uduk outcome, [ɗ], is identical to that of PNS *ḍ in the language. Only in old intervocalic contexts in Uduk does it yield the reflex [l] indicative of its originally lateral nature. In Gaam, PNS *ḷ became an interdental voiceless fricative (written θ) in most postvocalic environments, but *l word-initially.

Indirect evidence of *ḷ's originally dental pronunciation comes from a variety of other languages in which the consonant produced flapped outcomes, indicative of an originally front-tongue point of articulation: e.g., Kanuri, in which *ḷ > r /_#, and proto-Surmic, where *ḷ > *r /#_, among others. In Nilotic alone (and probably in certain word-initial environments in Daju), it produced a palatal outcome (proto-Nilotic *lʸ, realized as proto-Eastern Nilotic (PEN) *j' and proto-Southern Nilotic (PSN) *lʸ).

A sampling of the word-initial correspondences of PNS *l, *ḷ, and *r follows in Table 2.4. For further particulars, one should again turn to the tables at the close of this chapter.

Table 2.4. Sample of Nilo-Saharan word-initial liquid correspondences

PNS	Uduk	CSud	Kunama	Kanuri	Songay	Nubian	Gaam	Nilotic	Rub
*l	l	*l	l	l	l	*d	l	*l	*ɬ
*ḷ	ḍ	*l	l	l	l	*d	l	*lʸ	*l
*r	r	*r	d	r	d	Ø	r	*r	*r

PNS glides

Four PNS consonants can be placed in the category of glides. The interesting feature of this class in PNS was the recurrence there of the glottalic/non-glottalic distinction: PNS *w paired with a second PNS labial glide *'w, while PNS *y was paralleled by PNS *'y. The articulations of these four proto-phonemes can be presumed to have been similar to those of their modern reflexes /'w/, /'y/, /w/, and /y/ in

the Moru-Madi and Mangbetu languages of Central Sudanic: the first two consonants differ from the latter two by the addition of "a slight glottal 'catch'" (Tucker 1940: 105); they are pre-glottalized glides. Distinctive outcomes for PNS *w and *y have been noted only in Central Sudanic, argued to have preserved the original articulations; in Rub, where PNS *'y became proto-Rub *'j and PNS *'w post-vocalically fell together with proto-Rub *b; in Songay, where both consonants became /h/; and in Maba where PNS *'w may possibly have produced /b/ non-initially. Elsewhere PNS *'y normally fell together with *y, and PNS *'w with *w.

Sample outcomes word-initially for the four consonants are presented in Table 2.5.

Table 2.5. Sample of Nilo-Saharan glide correspondences

PNS	Uduk	CSud	Kanuri	Songay	Nilotic	Rub
*w	w	*w	w	w	*w	*w
*'w	w	*'w	w	h	*w	*w
*y	y	*y	y	y	*y	*y
*'y	y	*'y	y	h	*y	*'j

The glottal consonant of PNS

One final phoneme, representing a sixth position of consonant articulation, is PNS *h. It may have had two allophones, *[h] word-initially and *[ʔ] in other environments, but the evidence is not conclusive for this allomorphic distribution. A sample of its reflexes in Table 2.6 reveals the limited range of word-initial outcomes PNS *h in the modern Nilo-Saharan tongues.

Table 2.6. Sample correspondences of Nilo-Saharan *h

PNS	Uduk	CSud	Kunama	Kanuri	Songay	Nara	Nilotic	Rub
*h	h (*ʔ)	*'	h ~ Ø	h/_a,ɑ; y/_i,e; w/_o,u	h	h	Ø	*h

Elsewhere in Nilo-Saharan PNS *h generally became zero (Ø), as it did in Nilotic according to Table 2.6.

At some point in time, in pre-PNS, there probably existed an additional glottal consonant *ʔ. Its postulation is suggested by the existence in PNS of stems shapes VC and CV, differing from the otherwise general PNS *CVC pattern in their lack either of a stem-initial or of stem-final consonant. If such roots derive from earlier *ʔVC and *CVʔ shapes, their non-conformity to pattern would be accounted for by a single sound shift, deleting *ʔ. But such a consonant was clearly lost by the time of emergence of PNS, and modern occurrences of glottal stops in Nilo-Saharan languages can generally be assigned unambiguously to PNS *h or to later epenthesis.

The PNS consonant system

The forty-five PNS consonants revealed by the evidence presented here in Table 2.7 and in the Nilo-Saharan Etymological Dictionary can be arranged in a relatively well-balanced system.

Table 2.7. The consonants of proto-Nilo-Saharan

*ɓ		*ɗ	*ɗ̣	*ɠ
*b	*d̥	*d	*ḍ	*g
*p	*ṭ̥	*t	*ṭ	*k
*pʰ	*ṭ̥ʰ	*tʰ	*ṭʰ	*kʰ
*p'	*ṭ̥'	*t'	*ṭ'	*k'
	*θ	*s, *z	*ṣ	
*m		*n	*ɲ	*ŋ
*mb	*nð	ₒ *nd	*nḍ	*ŋg
*w			*y	
*'w			*'y	*h
	*ḷ̥	*l, *r		

A still better balanced system might have characterized the consonants of pre-PNS times. One of the two notable gaps in the distribution of the PNS voiced stops (see Table 2.1), the dental prenasalized

slot, can been filled, as it has been above, with a consonant that is best reconstructed for PNS as a dental prenasalized voiced fricative but which, from its systemic fit, can be suggested to have derived from an earlier pre-PNS *nḍ. Somewhat more adventuresomely, it can be proposed that PNS *ḷ, the dental lateral, accounts for the unfilled dental implosive slot, deriving thus from pre-PNS *ɗ, or, alternatively, it may account for the empty dental nasal slot, in that case reflecting pre-PSN *ṇ.

Nilotic consonant reconstruction

The Nilotic reconstruction followed here takes account both of the comparative work of Rottland (1982) and Vossen (1982) and of the wider correspondence patterns of the Nilotic cognates of older Nilo-Saharan roots. In combination, the data confirm the proto-Nilotic (PN) consonants reconstructed in Ehret 1974, with three significant exceptions: (1) two PN flap/trill consonants, flapped *r and probably trilled *R, must be postulated (following the lead of Rottland 1982), instead of just *r; (2) a voiced equivalent, *j, of PN *c must be added to the inventory; and (3) the dental nasal *ṇ is a probable Western Nilotic innovation, not traceable to proto-Nilotic. Dimmendaal (1984) proposes an additional PN consonant *s, but its possible existence remains to be adequately substantiated and in any case appears extraneous to the wider Nilo-Saharan consonant correspondences of the Nilotic languages. In general, examples in Eastern and Southern Nilotic of /s/, whenever their origins can be traced, prove to be loanwords.

The existence of distinct /b/ and /ɓ/ and also /d/ and /ɗ/ in Bari of Eastern Nilotic has led Dimmendaal (1984) to propose extending those distinctions also to PEN and by implication to PN. But Bari /d/ is in fact the normal outcome of PEN *'j (PN *l'), and non-initial /b/ is a normal reflex of either PEN *p or *ɓ, depending on the environment involved. This situation leaves word-initial /b/ as an isolated item, attributable to word-borrowing, as examples in the Etymological Dictionary show (e.g., Bari entries in roots 62 and 70 versus those in roots 59, 61, 65, and 73, and also the borrowed and non-borrowed Bari forms of the same root noted in root 596). Other comparative work, undertaken by Hieda (1983 and elsewhere), must be treated with some care because it tends to mix together comparisons that are not supportable by rigorous sound correspondences with others that are quite supportable.

The presently substantiatable correspondences among the three branches of Nilotic—proto-Western Nilotic (PWN), PEN, and PSN—are as follows in Table 2.8.

Table 2.8. Nilotic consonant correspondences

PN	PWN	PEN	PSN	PN	PWN	PEN	PSN
*b	*b	*ɓ	*p	*p	*p	*p	*p
*ɗ	*ɗ	*ɗ	*t	*ṭ	*ṭ	*t	*t
*d	*d	*ɗ	*t	*t	*t	*t	*t
*j	*j	*j'	*c	*c	*c	*c	*c
*g	*g	*g	*k	*k	*k	*k	*k
*m	*m	*m	*m	*r	*r	*r	*r
*n	*n	*n	*n	*ʀ	*r	*r, *rr	*ʀ
*ɲ	*ɲ	*ɲ	*ɲ	*l	*l	*l	*l
*ŋ	*ŋ	*ŋ	*ŋ	*lʸ	*l	*j'	*lʸ
*w	*w	*w	*w	*y	*y	*y	*y

PEN and PSN each possessed separately reconstructible *s; but these, as argued above, entered each branch via loanword activity and cannot be found in words common to languages of the two branches except in cases where borrowing from a language of one branch into a language of the other branch is certain or probable. Vossen (1982) has proposed several additional PEN consonant reconstructions to those allowed here; these all appear explicable in different ways, however, as environmentally conditioned variants of certain of the PEN phonemes identified in Table 2.8.

Using the PNS consonant tables

In the remaining portions of this chapter, an extensive tabling of the observed consonant correspondences of Nilo-Saharan is presented.

Table 2.9 lays out the usual patterns of consonant occurrence in word-initial position through a wide selection of Nilo-Saharan languages, and Table 2.10 provides the most common outcomes for PNS consonants in non-initial environments in much the same set of languages. A slash separating two items of an entry indicates that the two are alternative outcomes in complementary environments, whereas a similarity sign (~) between two items indicates that they are or were at one time free-alternate reflexes. An entry in parentheses is a reflex attributable to one language or one subgroup but not as yet to the whole group to which the entry refers. The sign Ø marks a nil reflex of a consonant. Blank spaces have been left on the charts where no reflexes have yet been identified in the particular languages concerned. Each table is followed by a commentary describing variant or alternative consonant reflexes in more limited environments in the various languages and offering a provisional historical ordering of sound shifts in particular languages.

In most instances the consonant correspondences are those of individual modern languages, but in five cases the reconstructed consonants of the proto-language of a particular Nilo-Saharan subgroup are presented: for Central Sudanic (Ehret MS), for Daju (modified by the writer from Thelwall 1981), for Surmic (the writer's very tentative proposals only), for Nilotic (Ehret 1974, revised by reference to Rottland 1982 and Vossen 1982), and for Rub (Heine 1976; Ehret 1981b). Also, in two instances where the modern Tama reflex of a PNS consonant differs from its reflex in earlier proto-Taman, the reconstructible proto-Taman root (marked with an asterisk) has been given. When a capital letter is offered as the reconstructed phoneme, the phonetic value of the etymon is unclear. Relatively minor adjustments of the published Daju reconstructions had to be made, and these are noted under the appropriate entries in the Nilo-Saharan Etymological Dictionary.

One significant correction of the published Rub reconstruction should be noted here, however. Ik /dz/ is usually a reflex of proto-Rub non-glottalic *j (PNS *ɗ), and its /z/ derives from proto-Rub *'j (PNS *ɗ) in underlying front-vowel environments. Ehret (1981b) mistakenly suggested the opposite alignment.

Table 2.9. Word-initial consonant correspondences of Nilo-Saharan

	*ɓ	*b	*d̪	*ɗ	*d	*ɗ̪	*ɖ	*ɟ	*g	*mb	*nd	*nɖ	*ŋg	*nð
Uduk	ɓ	b	ḍ̪	ɗ	d	d/j	j	g	g	b	d	d	g	š
PCS	*ɓ	*b	*d	*ɗ	*d	*ɗ̪	*ḍ	*ɟ	*g	*mb	*nd	*nz̧	*ng	*nj
Kunama	b	b	d	d	d	d	š	g	g	b	d	š	g	š
Kanuri	b	b	d	d	d	d	z	g	g	mb	nd	nj	ŋg	nz
For	b	b	d	d	d	j	j	g	g	b	d		g	s
Songay	b	b	d	d	d	z	z	g	g	b	d	z	g	z
Maba	b	b	j	d	d	j	s	g	g	mb	nd		ng	
Dongolawi	b	b	d	d	d	d	j	g	j	b	d	d	g	j
Tama	b	b	d			j	j	g	g	*mb		j	*ŋg	
Nara	b	b		d	d	d		g	g	mb	nd		ng	
Gaam	b	b	d	d	d	ḍ	ḍ	g	g	b	d	ḍ	g	j
Bertha	b	b		ɗ	d	ɗ	z	g	g		nd?	z	ŋg?	z
Temein				d/r		j				mb				
Nyimang	b	b	ḍ̪	d	d	d	ḍ	g	g	(*mb)			(*ŋg)	
Daju	*ɓ	*b		*ɗ	*d	*ɗ	*j	*g	*g	*mb	*nd	*nd	*ŋg	*ɲj (?)
Surmic	*ɓ	*b		*ɗ	*d	*d		*g	*g	*m	*d		*ŋ	
Nilotic	*b	*b	*d̪	*d	*d	*d	*j	*g	*g	*m	*d	*j	*ŋ	*d̪
Rub	*ɓ	*b	*ɗ	*ɗ	*d	*'j	*j	*ɟ	*g	*b/*m	*d	*'j/*ɲ	*g/*ŋ	*s (?)

Table 2.9. Word-initial consonant correspondences of Nilo-Saharan (continued)

	*p	*pʰ	*p'	*t̪	*t̪ʰ	*t̪'	*t	*tʰ	*t'	*ʈ	*ʈʰ	*ʈ'	*k	*kʰ	*k'
Uduk	p	pʰ	p'	t̪	t̪	t̪'	t	tʰ	t'	c	cʰ	c'	k	kʰ	k'
PCS	*p	*p	*p'	*t	*t	*t'	*t	*t	*t'	*ʈ	*c	*ʈ'	*k	*k	*k'
Kunama	b	f	f	t	t	t/d	t/d	t/d	t/d	t/d	š	t/d	k	k	k/g
Kanuri	b	f	b	t	t	t	d	t	t	t	c	s	k	k	k
For	f	f	f	t	t	t	t	t	t	t	t	t	k	k	k
Songay	b	f	b	t	t	t	d	t	d	t	t	t	g	k	h
Maba	b	f	f	d	d?	d	t	t	d	c	c		g	k	k
Dongolawi	b	Ø	b	t	(t)	t	d	t	t	t	t	t	k	k	k
Tama		f		t	t	t	t	t	t	t	t	t	k	k	k
Nara	b	f	f	t	t	t	d	t	t	t	s	s	k	k	k
Gaam	p	f	b	t	t	t	t	t	t	c	c	ʈ	k	k	k/Ø
Bertha	b	f	p'	d	θ	s'	d	θ	s'	θ	θ	s'	h	h	k'
Temein	p	p		t̪	t̪	t̪							k		k
Nyimang		f		t̪	t̪	t̪	t̪	t̪		t	t̪	d	k	k	k
Daju	*p	*p	*p	*t	*t	*t	*t	*t	*t	*s	*c	*c	*k	*k	*k/Ø
Surmic	*b	*p	(b)	*t̪		*t̪'	*t	*t/*c	*t/*c	*T	(c)	(š)	*k	*k	*k'
Nilotic	*b	*p	*p	*t̪	*t̪	*t̪	*d	*t	*t	*c	*c	*c	*k	*k	*k
Rub	*b	*p	*ɓ	*t	*t	*c'	*t	*t	*c'	*c	*c	*c'	*k	*k	*k'

Consonants of proto-Nilo-Saharan

Table 2.9. Word-initial consonant correspondences of Nilo-Saharan (continued)

	*h	*θ	*s̬	*s	*z	*r	*l	*ḷ	*w	*'w	*y	*'y	*m	*n	*ɲ	*ŋ
Uduk	ɦ	š	š	š	s	ɾ	d̪	d̪	ʍ	ʍ	y	y	m	n	ɲ	ŋ
PCS	*'	*θ	*š	*s	*z	*ɾ	*l	*l	*'w	*'w	*y	*'y	*m	*ɲ	*ɲ	*'ŋ
Kunama	ɦ~Ø	š	š	s	s	d	l	l	w	w	y	y	m	n	ɲ	ŋ
Kanuri	ɦ	s	s	s	z	ɾ	l	l	w	w	y	y	m	n	n	n
For	Ø	s	s	s	s	ɾ	l	l	w	w	y	y	m	n	n	n
Songay	ɦ	s	s	s	s	ɾ	l	l	ɦ	ɦ	y	y	m	n	n	n
Maba	Ø	s	s	s	s	ɾ	d	d	w	w	y	y	m	n	n	n
Dongolawi	Ø	s	s	s	s	Ø	ɗ	ɗ	w	w	Ø	Ø	m	n	n	n
Tama	Ø	s	s	s	s	ɾ	l	l	w	w	y	y	m	n	n	n
Nara	ɦ	s	s	s	s	d	l	l	ɦ	ɦ	y	y	m	n	n	n
Gaam	Ø	θ	Ø	s	j	ɾ	l	l	w	w	y	y	m	n	n	n
Bertha	Ø			s	z	ɾ	l	l	w	w	y	y	m	n	n	n
Temein	Ø	s	s	s	s		l	l	w	w	y	y	m	n	ɲ (n/_Vn)	ŋ
Nyimang	Ø	s(š/_ɛ)	s	s	s	d	l	l	w	w	y,j	y,j	m	n	n	n
Daju	Ø	*š	*š	*š	*š	*d/ɗ	*l	*l	*w	*w	*y	*y	*m	*n	*ɲ	*ŋ
Surmic	Ø	*c	*t	*c	*j	*ɾ	*ɾ	*ɾ	*w	*w	*y	*y	*m	*n	*ɲ	*ŋ
Nilotic	Ø	*t̪	*t̪	*t	*ɗ	*ɾ	*lʸ	*lʸ	*w	*w	*y	*y	*m	*n	*ɲ	*ŋ
Rub	*ɦ	*s	*š	*s	*s	*ɾ	*ɬ	*l	*w	*w	*j	*j	*m	*n	*ɲ	*ŋʷ

Commentary to Table 2.9

Uduk

1. PNS *ɗ > j /#_[-round]; PNS *ɗ > d elsewhere.
2. PNS *t̪ʰ > cʰ /#_i.
3. PNS *w, *'w sometimes > Ø /#_[+round].
4. PNS *y > Ø /#_e# and /#_eNC.
5. PNS *y, *'y sometimes > h~y /#_VC, V = [+high], especially *i.
6. PNS *n, *ŋ > ɲ /#_[+front] (before rule 9 in Commentary to Tables 3.1-3.4).

PCS

1. PNS *ɗ > pre-PCS *r /V_ (preceded shift 2).
2. a. PNS *(N)DVL > *(n)drV (D = PNS *ḍ, *d, or *ɗ, L = PNS *l, *ḷ, or *r, including *r < PNS *ɗ, for which see shift 1);
   b. PNS *TVL > *trV, T = all PNS dental, alveolar, and prepalatal voiceless stops except possibly *t̪ʰ (> PCS *c); L = as in 2.a.
3. PNS *CᵥVC₁ > C₁ᵥV, where Cᵥ = [+velar], C₁ = [+labial], in the following varieties:
   (a) *ɠVB > gɓV;
   (b) *ɠVP, *gVB, *kVB, and *kVp > *gbV;
   (c) *gVP, *kʰVB, *k'VB, and *KVP > *kpV (B = *b or *ɓ, P = *p, *pʰ, or *p', and K = *k, *kʰ, or *k').
4. PNS *(N)DVS > *(n)zV if both D and S = dental or alveolar, > *(n)ẓV if one of D or S is prepalatal (D = *ḍ, *ɗ, *d, *ɗ, or *ḍ, S = sibilant).
5. PNS [+tense/-voice] > pre-PCS [+voice] /N(V)_ (preceded shift 7).
6. PNS [+contin./-voice] > [+contin./+voice] /N(V)_ (preceded shift 7).
7. pre-PCS *NV(N)C > *NCV, C = [+voice] (not = PNS *ḷ).
8. PNS *hVNC > *NCV.
9. PNS *waN > *Nwa.
10. *C > Ø /#CV_# (this shift came last and removed all remaining stem-final C not previously resituated by shifts 1-9).

Kunama

1. PNS *e, *o > pre-Kunama *a; PNS *ɛ > pre-Kunama e, *ɔ >

pre-Kunama *o; which was followed by:

2. PNS *e: > pre-Kunama *i:, *o: > pre-Kunama *u:; and:
3. *ṭ > *ṭ^h; after that:
4. *ṭ' > ṭ'; then:
5. *t' > *c' /_i; and then:
6. *ṭ > t, *ṭ' > t', *ɗ > *d, *ṣ > s; after which:
7. *t > pre-Kunama *d, *t' > *ɗ /#_VS, where V = [-high], S = sibilant; and in addition:
8. *t > pre-Kunama *d, *t' > *ɗ /#_VS(S)V(-)#, V = pre-Kunama *o(:) [< PNS *ɔ(:)], *u(:), S = sonorant. These shifts along with:
9. *k' > ɠ /#_il-; and:
10. PNS *ṭ^h >pre-Kunama *č, PNS *(n)ḍ > pre-Kunama *(n)ǰ—as well as two shifts deleting the distinction between dentals and alveolars:
11. NS *θ > š, *nð > pre-Kunama *nǰ ; and:
12. PNS *ḍ > ɗ; *ṭ^h, *t^h > t; *ḷ > 1; the latter of which itself preceded:
13. *ɗ > r /V_—all came before:
14. deletion of the feature [+glottal] (collapsing the ejectives and implosives with their non-glottalic equivalents); and also before:
15. *ǰ > *č, *z > s; after which:
16. *č (created by shifts 11, 15, and 16) > š; and finally:
17. *NS > *S, where S = sibilant. Also, the shifts:
18. a. PNS *We, *Wi > u /#_C,
   b. PNS *Wa, *Wɛ > o /#_C, C not = 1 (?), and:
   c. PNS *Wa:, *Wɛ: > u /#_C, C = obstruent—this last shift preceding Kunama shifts 2 and 5 of the Commentary to Table 2.10 below— along with:
19. a. PNS *Yi(:) > i /#_,
   b. PNS *Yɛ(:), *Ya(:) > i /#_C, and
   c. PNS *Y > Ø /#_[+round]C; can all be placed after PNS *'w > w and *'y > y, which itself would have been brought about by shift 15 above.

----

20. /d/ > sporadic d ~ ǰ alternations; rarely also /t/ > t ~ č.
21. *h > h ~ Ø /#_, > Ø elsewhere.

Kanuri

1. PNS *ṭ > pre-Kanuri *ṭ^h /V_; was followed by:
2. PNS *t' > *č', *ṭ^h > *č in pre-Kanuri; which preceded:
3. pre-Kanuri *č' > *s'. Shift 2 along with:

4. PNS *t > d; and
5. PNS *VN > *V: /_C^h#, came before:
6. deletion of feature [±aspirated]. Another shift:
7. PNS *Vh > *V:, together with shift 3, operated before:
8. deletion of feature [glottal] (collapsing the ejectives and implosives with their non-glottalic equivalents). This shift and:
9. pre-Kanuri *č > *š > s /V_, both preceded:
10. V-raising/lengthening /#C_s/z# and /C_S#, S = alveolar sonorant, (i.e., PNS *ɛ(:) > *e:, *ɔ(:) > *o:, *e(:) > *i:, *o(:) > *u:). This shift (or, probably, composite of two shifts) along with shift 3 above and:
11. PNS *o > pre-Kanuri *ɔ: /#k_L, /#L_k, and /#k_k, L = liquid; all preceded:
12. PNS *e: > *i, *o: > *u in pre-Kanuri; followed by:
13. pre-Kanuri *i, *e, *o, and *u > ə, *ɛ and *ɔ > a, *a > ɑ /_C and /C_C_#. This shift was followed by:
14. *V: > V (*i: > i, *u: > u, *ɛ: > e, *ɔ: > o, *a: > a); which preceded:
15. /a/ > [ɑ] /_#. Shift 14 also came before:
16. PNS *g > j, *k > *c /_i and /#_i- (verb-stem-final) in pre-Kanuri; which was followed by:
17. pre-Kanuri *c > š; which came before:
18. *s > š /_i (and probably *(n)z > (n)j /_i); and:
19. pre-Kanuri *ḍ (< PNS *ɗ) > d ~ j /#_iC, > d elsewhere; PNS *ṭ > t; and:
20. PNS *g > j, *k > c /_ [+front] (only /e/ left in this category).

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21. PNS *#NCV# verbs > -VNC- in Kanuri class 1.
22. PNS *#VC > #wVC, V = [+round], > #yVC, V = [+front].
23. PNS *h >w /#_[+round], >y /#_[+front], > Ø /V_, > h elsewhere.

For

1. PNS *WV > o, u /#C- + __C (*Wa, *Wɛ, *We > o; *WV: and *Wi > u).
2. PNS *YV > i, e /#_V, V = [-round] (Ya > ya /#_#, > e /#__y; other YV > i);
3. PNS *Y > Ø /#_[+round].
4. PNS *Y > Ø /#C- + _aC.
5. PNS *g, ɠ > j, *D > r /verb-stem initial (D as in PCS shift 4).
6. PNS *y, *'y > j /verb-stem initial.

7. pre-For #wi# verb stems > iw- (this shift surely has some kind of wider generality, still to be determined, and probably derives from the effects of synchronic verb morphology).

Songay

1. PNS *ɗ > *ɗ, was followed by:
2. *ɗ > pre-Songay *ʄ; which along with:
3. PNS *ṭ, *ṭʰ > *[č], *ṭ' > *[c'] /V_ in pre-Songay; came before:
4. pre-Songay prepalatals were removed, probably by a shift to dental position (*ṣ > *θ, *ʄ (> *ž?) > *ð, *ɗ > ḍ, *ṭ > *ṭ, *ṭʰ > *ṭʰ, and *ṭ' > *ṭ', with the allophones *[č] > *θ, *[c'] > *[θ']). This shift and:
5. PNS *[-voice/+glottal/-cont] > pre-Songay *[-voice/+tense/-cont] /N_, preceded:
6. *ṭ, *ṭ' > pre-Songay *ṭʰ, except /N_, which came before:
7. deletion of feature [dental]. Shift 6, along with:
8. PNS *p > pʰ /#_Vmp (one example, no counter-examples) also preceded:
9. [+tense/-voice/-cont] > [+voice/-cont] (remaining *p > *b, *t > *d, *k > *g). Shift 6, together with:
10. PNS *k' > h (*h later > Ø /V_), both preceded:
11. deletion of feature [+glottal] in three steps:
    a. [-voice/+glottal/-cont] > [+voice/+glottal/-cont]; followed by:
    b. [+voice/+glottal] > [+voice/-glottal]; and finally:
    c. pre-Songay *s' > s. Shifts 9 and 11, as well as the sequence of shifts 12 and 13—
12. PNS *yɛ(h)# > i (one example; no counter-example); followed by:
13. PNS *ɛ(:) > *e(:), *ɔ(:) > o(:) /#(C_)C_(N)#; > *a(:) elsewhere in pre-Songay—all operated before:
14. pre-Songay *g > j, *k > c, *ŋ > ɲ /_[+front] (this shift came after PNS *k and *ɠ > *g and *k' > h); which was itself followed by:
15. early Songay *a(:) > ɛ̀(:), *e(:) > i(:), *o(:) > u(u) /#C_(N)C- + -V[+high]#.
------
16. PNS *ɲ > n /#_o# and /o_#.
17. PNS *mb > *m /#_Vl- (just one example); after which:
18. PNS *NC > C /#_.
19. PNS *we(:) > o(o) /#_# and /#_L, L = liquid.

Maba

1. PNS *ŋ > ɲ /_[+front] (for palatalization of other velars, see commentary to Table 2.10, Maba shifts 14 and 15).
2. PNS *Wi, *We > o /#_l; *We (and presumably *Wi) > u /#_C, C not = *l; *Wɛ > o /_#.
3. PNS *YV > [+front] (examples: *yi > i; *yay > i /#CV_#; *ya > e /#_C; *'ye > e /#a_#).

Dongolawi

1. a. PNS *WV₁ > [+round] /#(a)_S(VC)(V)#, V₁ = [+front], sonorant; varieties: *Wɛ(:) > o(:), *Wa'y (> presumed pre-Dongolawi *We), *We(:), *Wi(:) > u(:);
   b. PNS *Wa(:), *Wɛ(:) > u /#_rC.
2. PNS *We (and *Wi ?) > u /#_s.
3. PNS *Yi(:), *Ye(:) > i(:), except for #'ye# > ɛ; followed by:
4. PNS *Y > Ø elsewhere.

Tama

1. PNS *WV > [+round] /#_f, /#_luw-, and /#_#.
2. PNS *Wi > i /#_k- (one example).
3. PNS *YV > i /#_#, V not = [+round].
4. PNS *Y > Ø /#_i.

Nara

1. pre-Nara *t > š /#_i (for sources of pre-Nara *t, see Table 2.9).
2. pre-Nara *s > [š] /#_i (pre-Nara *s < PNS *θ, *s, *š, and *z). For where these two shifts fit in the Nara ordered sound shifts, see Table 4.6, Nara shifts 9 and 10.

Gaam

1. PNS *We, *Wɛ > ə̃ə̃ /#_L-#, > ə̃ /#_LVC, L = liquid; *We:, *Wi > ɔ ~ u, *Wa > ɔ /#_S(C)-#, S = sonorant.
2. PNS *y > Ø /#_[+front].

Bertha

1. PNS *Yi > i:, *'ye(:) > i(:), *Wi > u /#_C.

2. PNS *#(V$_1$)CV$_2$# > #NCV#, V$_1$ = V$_2$, C = plain voiced stop, after Bertha shifts 7 and 10 in Commentary to Table 2.10.

Temein

1. PNS *ɗ > r /verb-stem-initial.
2. PNS *W > Ø /#_iCVC.
3. PNS *b > m /#_VN.

Nyimang

1. PNS *y > j /_e#.
2. PNS *ye > e /#_C, *yi > i.

Daju

1. PNS *wi > *(w)u, *we > *o /#_CV, C = [+contin].
2. PNS *'we > *u, *aWa > *o /#__d.
3. PNS *Wi > *i /#_CC.
4. PNS *wa(:) > o /#_SVC, S = sonorant.
5. PNS *ye > *i /#_y/
6. PNS *'y > *j /#_e (one example; no counter-examples).
7. PNS *ŋ > pre-Daju *ɲ /#_[+front] (before some PNS *ε > *a in pre-Daju).
8. PNS *ḷ > *'j /u.

Nilotic

1. PNS *we: > Nilotic *o: /#_CVC, V = [+round] (one example; no counter-examples as yet).

Rub

1. PNS *NC > *N /#_VC, C = [+sonorant] or [+contin]; > *C otherwise; and:
2. PNS *a:y > Rub *e, *εy > *i; both preceded:
3. PNS *#CV# > Rub *#VC#, V not = *wε; after which:
4. PNS *e > Rub *ɪ, *ɛ, *i, PNS *a > Rub *e /#Y_C (variant outcomes apparently depending on following C); which came before:
5. PNS *y > Ø /#_i.

6. PNS *we, *wε, *(a)Wa > *o /#_C(V)# and /#_CVC-; and:
7. PNS *h > Ø /i- + #_V.

Wider distributed shared sound shifts

I. Northern Sudanic: PNS stem shape *#WV$_1$C# > -V$_2$C#, V$_1$ = [-round], V$_2$ = [+round], with addition of a prefix. The common outcomes were *Wa > /ɔ/ or /o/, *We > /o/ or /u/, and *Wi > /u/ in such instances. Examples of this rule are known throughout Nilo-Saharan except in Koman and PCS. It appears therefore to be in origin a long-lived synchronic morphophonemic innovation of the proposed Northern Sudanic branch (see Chapter 4).

II. Saharo-Sahelian: PNS *nð > *nz.

III. Sahelian: PSahSah *nz (< PNS *nð) > *z.

IV. Eastern Sahelian: PNS *#ŋg(w)V# > *ŋV in nominals. This shift is rarely attested because its environment is a rare one, but the evidence is consistent. It has been noted for the Kir-Abbaian languages and for Nara of Astaboran (evidence from Rub and Western Astaboran languages has not been found as yet: see roots 478 and 499 in the Etymological Dictionary), and thus appears to be an innovation of the Eastern Sahelian subgroup.

V. Possible Kir-Abbaian: PNS *h > Ø. This shift recurs commonly enough elsewhere; so it may have arisen separately in the Jebel and Kir branches of Kir-Abbaian or separately in still later subgroups of those two. The simplest hypothesis, though—since *h was still retained in early Rub and Astaboran (see Nara) of Eastern Sahelian, but nowhere in Kir-Abbaian—is that its deletion was a proto-Kir-Abbaian shift.

VI. Possible Kir-Abbaian: PNS *ɠ > *g. This shift recurs so widely that it may have been separately innovated since proto-Kir-Abbaian, but again the evidence for its earlier presence in Rub and Astaboran (see Nubian reflexes of the two consonants) and its complete lack of indication in Kir-Abbaian tongues make it most probably a Kir-Abbaian innovation.

VII. Jebel subgroup of Kir-Abbaian: PNS *ṯ' > probable proto-Jebel *[ɟ] /#_iC, yielding Gaam /j/ and falling together in Bertha with PNS *ɗ to produce modern-day Bertha /d/.

VIII. Jebel subgroup of Kir-Abbaian: PNS *ṯ, *ṯ^h > *ṯ^h > proto-Jebel *č. Nowhere else in Nilo-Saharan do just these two particular consonants alone fall together.

Table 2.10. Non-initial consonant correspondences of Nilo-Saharan

	*ɓ	*b	*ɗ̣	*ɗ	*d	*ɗ̣	*ḍ	*ɠ	*g	*mb	*nd	*nḍ	*ŋg	*nð
Uduk	ɓ	b/ɓ	ɗ̣/ɗ	ɗ	r	j/r	j	g~k'	g/kʰ	b	d/ɗ		g/kʰ	
Kunama	b	b	r	r	d	d/r	š	g	g	b	d	d	g	
Kanuri	v~w	v~w	r	r/l	r/l	r	z	g	g	mb	nd	z	ŋg	
For	b	b	r	r	r	j/r	j	g/Ø	g/Ø		nd		ŋg	s
Songay	b/w	b/w	r	r	r	r	r	g	g	mb	nd	nd	ŋg	nz
Maba	b	b		r	r	j	s				nd		ng	
Dongolawi	b	w	r	r	r	r (*dʸ)	š	g	j	mb			ŋg/j/n	
Tama	b	b		1/r	r			g	g					*c
Nara	ɓ	b	d	r	d			g		mb	nd		ng	
Gaam	b/w	w	ɬ	r	r	ḍ/r	ḍ	g	Ø	b			g/Ø	
Bertha		b	r	ɗ/r	d/rr	ɗ/r	d				nd			
Temein					d									
Nyimang	b	b	ḍ̣	r	d/r	ḍ̣		g	g					
Daju		*d	*ɗ/*r	*d/*r		*d		*g	*g	*mb	*nd		*ŋg	
Surmic	*b	*b	(r)	*r	*r	(r)		*g			*r		*ŋ	
Nilotic	*b	*b	*ḍ̣	*d	*r	*r	*j	*g	*g	*m	*r	*ɲ	*ŋ	
Rub	*ɓ	*b	*d	*ɗ	*d	*'j	*j	*ɠ	*g	*ɓ	*ɗ	*'j	*ɠ	

Table 2.10. Non-initial consonant correspondences of Nilo-Saharan (continued)

	*p	*pʰ	*p'	*ṭ̣	*ṭ̣ʰ	*ṭ̣'	*t	*tʰ	*t'	*ṭ	*ṭʰ	*ṭ'	*k	*kʰ	*k'
Uduk	p/pʰ	pʰ	p'/p	ṭ̣ʰ	ṭ̣ʰ	ṭ̣'/ṭ̣	t/tʰ	tʰ	t'/t	c/cʰ	cʰ	c'/c	k/kʰ	kʰ	k'/k
Kunama	b	f	f	t/d	t	t/d	d	t	t	t	š	t	g/k	k	k
Kanuri	p/v~w	p/f	p/v~w	t/d	t/d		r	t	t/d	s	s	s	k/g	k	k
For	b/f	f	b/f	t			t	t	s				g	g	g
Songay	b/w	f	b/w	r	t	t	r	t	r	s	s	s	g	k	Ø
Maba	f			d	r	r		t	s	s	s	s	k	k	k
Dongolawi	b	w	b				d	d		(*j)	š(*j)	k/g	k/g	k/g	
Tama	b	f					t	t			c		k	k	
Nara	b	f				t					s	g	h (?)		
Gaam	b/w	f/w	b/w	d/ɬ	d/ɬ	d/ɬ	d	d	r	s		s	Ø	Ø	Ø
Bertha		f	p'	d		s'	d	θ			θ	s'	g	h	k'
Temein				ṭ̣			t						k		
Nyimang	b	f		ḍ̣	ḍ̣		d		ḍ̣			ḍ̣?		k	
Daju	*b	*b	*b		*d	*ɗ	*d	*d			*c/*j		*g/*k	*g/k/x	*g/x
Surmic		*p	*b	*t									*k	*k	*k'
Nilotic	*b	*p	*p	*ṭ̣	*ṭ̣	*ṭ̣	*d	*t	*d	*c	*c	*c	*k	*k	*k
Rub	*b	*p	*ɓ		*t	*c'	*t	*t	*c'	*c	*c	*c'	*k	*k	*k'

Table 2.10. Non-initial consonant correspondences of Nilo-Saharan (continued)

	*mp	*mpʰ	*mp'	*nt̪	*nt̪'	*nt	*ntʰ	*nt'	*nt̪	*nt̪'	*ŋk	*ŋkʰ	*nk'	*ns	*nṣ
Uduk	mp/p	pʰ	mp	t̪ʰ	t̪'			ɗ			ŋk/kʰ	kʰ	ŋk~ŋk'		
Kunama	mb	nf		nt	nd	nd	nt	nd	t	nt	ng/g	nk/k	nk/k	ss	s
Kanuri	mb/p	w~v	mb	nd,n/_#	t		nt				ŋg/k	ŋg/k	ng/k		
For		b	ɓ	nt							ŋ	g	g		
Songay	mb		mb	nd	nd	nd	nt	nd	nd	ns	ŋg/ŋ	ŋk	ŋg	ns	ns
Maba				nt							ng/ŋ	ng/ŋ	ng	s	
Dongolawi	mb/b	b	ɓ	nd		d					ŋg/k/g	g/k	ŋg/g	ss	šš
Tama	(b)				d		t				k			s	
Nara	b			t								ng		s	
Gaam	b/w	f/w	b/w	ɫ	ɫ					j	ŋ	Ø	Ø~g	s(s)	s
Bertha		f	p'								ŋ		∘	s	
Temein	m	p		t̪	t̪						ŋ				
Nyimang				d̪							ŋ	g	g		
Daju		*b						*ɗ		*ɗ	*ŋ	*g/*k		*s	s
Surmic	*m			*t	*T							*k?		*s	*s
Nilotic	*m	*p	*p	*t̪		*n	*t		*c	*c	*ŋ	*k	*k	*t	*c
Rub	*b		*ɓ	*t		*t	*t				*k	*k	*k'		(z)

	*h	*θ	*s	*ṣ	*z	*r	*l	*ḷ	*m	*n	*ɲ	*ŋ
Uduk	'	s~t̪ʰ	s	š	s	r	l	l/ɗ	m	n	ɲ	ŋ
Kunama	Ø	š	s	s	s	r~ll	l	l	m	n	ɲ	ŋ
Kanuri	Ø	s	s	s	z/s	r/l	l/r	l/r	m	n	n	ŋ
For	Ø	s	s	s	s	r	l	l	m	n	n	ŋg
Songay	Ø	s	s	s	s	r	l	l	m	n	n/y	ŋ
Maba	Ø	s	s	s	s	r	l	l	m	n	ɲ	ŋ
Dongolawi	Ø	s	s	š	s	r	l	l	m	n	ɲ	ŋ
Tama	Ø	s	s			r/l	l	l	m	n	ɲ	ɲ/n
Nara	Ø	s		s		r	l	l	m	n		n/g
Gaam	Ø	z	s	s	d/j	r	l	ɫ/Ø	m	n	ɲ	ŋ
Bertha	Ø/n	θ	š	θ	z	l/r	l	r	m	n	n	ŋ
Temein	Ø	s	s			r	l		m	n/ɳ	ɲ	ŋ
Nyimang	Ø		s	s		r	l	r/l	m	n	ɲ	ŋ
Daju	Ø	*š	*s	*s	*š	*R	*l	*R, *l	*m	*n	*ɲ	*ŋ
Surmic	Ø	[s]	*s	*š	(s)	*R	*l	*L	*m	*n	*ɲ	*ŋ
Nilotic	Ø	*t̪	*t	*c	*ɗ	*R	*l	*lʸ	*m	*n	*ɲ	*ŋ
Rub	*h	*s	*s	*ṣ	*s	*r	*ɫ	*l	*m	*n	*ɲ	*ŋ

Commentary to Table 2.10

Uduk

1. PNS *mp > m /_#, was followed by:
2. pre-Uduk *N > NC /#CV_+ -Vl; and by:
3. PNS *NC > C /_#, C = [-voice] (*mpʰ > pʰ, *mp' > p', *t̪ > t̪ʰ, etc.; except that *nt' > ɗ); this shift 3, along with:
4. pre-Uduk *g (< PNS *g, *ŋg) > k /_#; and:
5. pre-Uduk [+glottal/-voice] > [+tense/-voice] /V(N)_V (*p'>p, *t̪'> *t̪, etc.; ejection is retained in a few as yet undefined instances); and:
6. pre-Uduk *kʰ > kʰ~ ɦ, *k' > k'~ ʔ (written ') /#C₁V_(VC)#, C₁ usually = velar; were all followed by:
7. pre-Uduk [+tense/-voice] > [-tense/-voice]/_# (*p > pʰ, *t̪ > t̪ʰ, etc.).

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8. PNS *t̪ > l /#t̪V_#, and:
9. PNS *t̪ > l /V_V; preceded:
10. PNS *t̪ > ɗ elsewhere. These three shifts, along with:
11. PNS *d > r /V_, were followed by;
12. a. pre-Uduk *b > ɓ /_#, > b /V_V;
    b. pre-Uduk *ɗ > [ɗ]/_#, > ɗ /V_V;
    c. PNS *ɗ (> pre-Uduk *d) > r /_#, > j /V_V;
    d. PNS *ɟ > g~ k' /_#; which was followed by:
13. pre-Uduk *#moɟ#> #mut̪'# and *#moɗ# > *#mut̪'# + -a > #mut̪ʰa# (after vowel shifts of PNS *ɔ > o and V: > V in pre-Uduk: rules 1 and 11 in Commentary to Tables 3.1-3.4); which was followed by:
14. pre-Uduk *[ɗ̪] > ɗ.

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15. PNS *ŋ > n /#nV_.

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16. PNS *ɲ > n /#(C)a_(aŋa)#, C = PNS palatal.

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17. PNS *nkʰ > nk (*NCʰ > NC ?) /#CV_Vl.

Kunama

1. PNS *t̪, *t̪' > Tʰ; /#CʰV(N)_V(-)# in pre-Kunama (after PNS *p' > *pʰ, = modern Kunama /f/; and presumably after Kunama shift 3 in the Commentary to Table 2.9, by which PNS *t̪ became also an ejective). This shift along with:
2. PNS *NC > C, C = [+voice]; were followed by:
3. PNS *k > kʰ /#CʰVN_V(-)# ; after which:
4. PNS *t̪, *t̪', and *t > d, *k > g /#(C)V(N)_; after which:
5. pre-Kunama *V(ŋ)kʰ > *V(:)kʰ, *nt̪ > *t̪ /#C₁V_V(C₂V), C₁ = pre-Kunama *t, *š, or *pʰ), C₂ = l, n; > *nk elsewhere; which came before Kunama shift 15 of the Commentary to Table 2.9 (by which PNS *t̪ > t) and also before:
6. pre-Kunama *kʰ > k ~ g /#CV_V-#, C = [-voice/+cont]. Shift 6 probably preceded Kunama shift 14 in the Commentary to Table 2.9, since shift 6 is not yet known to cause PNS *k', changed to /k/ by shift 14, to produce any /g/ (remaining *k > /k/).

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7. PNS *pʰ, *p' > pre-Kunama *p /#C(V)V₂_, V₂ = [+high] (i, u, w); examples are known of C = l, *w, *y, t, and s; the full environment of this shift remains to be worked out; took place before *p > Kunama /b/;
8. pre-Kunama *d (PNS *d, *ɗ) > r /#(C)V_(V)CV, > d elsewhere.
9. *r > l /#lV_.

Kanuri

1. PNS *ɗ > pre-Kanuri *ǰ (> Kanuri /z/); was followed by:
2. the collapsing of PNS *ɗ and *ɗ, probably by a shift of the form PNS *ɗ > pre-Kanuri *ɗ, and then by:
3. pre-Kanuri *ɗ > r /V_, > *d elsewhere. This latter shift, along with:
4. PNS *p' > pre-Kanuri *ɓ; preceded the Kanuri shift 7 of the Commentary to Table 2.9. Another shift:
5. PNS *p > pre-Kanuri *b, *t > pre-Kanuri *d; came before the shift 5 of the Commentary to Table 2.9, deleting the distinction [±aspirated]. These several shifts all preceded:
6. pre-Kanuri *d (< PNS *d, *t, and *ɗ) > l /#CV_#, > r /V_V. Two other shifts:
7. PNS *l > r /V_C; and:
8. PNS *t̪ > r /#CV_(CV)#, both preceded:
9. deletion of feature [dental] (inter alia, collapsing pre-Kanuri *t̪ and *l as /l/). These thirteen shifts—along with the sequence:
10. PNS *ŋ > ŋg; followed by:
11. PNS *NC > C /_#, C = [-voice] or [+cont], > N /_#, C = [+voice/-cont]; > NC elsewhere—all came before:

12. pre-Kanuri *ŋ > n /_#; and:
13. pre-Kanuri [+voice/+obstruent] > Kanuri [-voice]/_# > [+voice] elsewhere (labials > [v]~[w] /V_V); and:
14. pre-Kanuri [-voice/-cont] > Kanuri [-voice/-cont] /#_ and /_#; > Kanuri [+voice] elsewhere (thus pre-Kanuri *p, like *b, > [v]~[w] /V_V); the rest > [+voice/-cont]); which itself was followed by:
15. remaining pre-Kanuri *p > /f/ (/#_ and verb-stem-final in class 1 verbs).

For

1. Some *ŋg (< PNS *ŋg, *ŋk) > ŋ (environment still to be worked out). This shift preceded:
2. deletion of feature [+glottalic]; after which:
3. pre-For *g > Ø /#CV_VC. Shift 1 also came before:
4. deletion of feature [±tense] in voiceless stops; after which came:
5. deletion of feature [dental] (pre-For *ṭ > t, PNS *ḍ > d, *ḷ > l, *nð > *nz). This shift in turn variously preceded:
6. pre-For *d (< *ḍ, *ɗ, and *d by shifts 2 and 5) > r /V_; and:
7. pre-For *p > f /#_ and /_C, > b elsewhere; *b > f /_C, elsewhere > b; and:
8. pre-For *k > g /V_, which also followed shift 3; as well as the pair of shifts:
9. pre-For *ṭ > *č, PNS *nḍ > *nǰ /V_ ; and:
10. pre-For *ṭ > t /#_; after which, first:
11. pre-For *nz > *ns, *nǰ > *nč (devoicing affricative nasal clusters; and then:
12. pre-For *ns > s; and finally:
13. pre-For *š > s, *nč > ns.

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14. [-contin/+voice] > CC[-voice] /#CV_V# in adjectives (/b/ > [pp], /g/ > [kk], etc.; probable source: CVC- stem + assimilated form of *tʰ adj. suff., i.e., *CVCtV > *CVCCV).

Songay

1. pre-Songay *h > Ø /V_ (after Songay shift 10 of Commentary to Table 2.9).
2. PNS *k' > y /V_#, V = [-front].
3. PNS *t 2 > t /V_V (before Songay shift 9 of Commentary to Table 2.9).

Maba

1. PNS *k > g (> ng /#V_Vn#). This shift preceded:
2. deletion of feature [± aspirated].
3. PNS *ḍ > *ǰ > pre-Maba *ž; after which came:
4. PNS *z > s, pre-Maba *ž > *š (devoicing of fricatives); followed by:
5. PNS *ḍ > j. Following this shift, as well as shift 2, came:
6. pre-Maba *ṭ (< PNS *ṭ, *ṭʰ by shift 2) > pre-Maba *ḍ; which preceded:
7. deletion of feature [dental]; after which:
8. pre-Maba *t' (< PNS *ṭ', *t' by shift 7) > pre-Maba *ɗ; which in turn operated before:
9. deletion of feature [glottal]; after which:
10. /d/ (< PNS *d, *ɗ, *ṭ', and *t' by shifts 7, 8 and 9) > r /V_; which came before:
11. r > n /#N(C)V_-# or /#(V)NV_#. Also following shift 9 came:
12. pre-Maba *c (< PNS *t, *tʰ, *ṭ' by shifts 2 and 9) > pre-Maba *š /V_; followed by:
13. pre-Maba *š > s.

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14. (N)g > (n)j /V_i; and more generally:
15. *ŋ > ɲ /_[+front].

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16. *NC[-voice] > NC[+voice] (limited range of examples is known so far); after which:
17. /ŋg/ > [ŋ] /V_(-)#.

Dongolawi

1. PNS *ŋg > pre-Nubian *ŋ /_#, > *g /_-# (verb-stem-final), > *ŋg /V_V; was followed by:
2. PNS *g > *j /#_; which preceded:
3. PNS *NC > pre-Nubian *C /#_; and:
4. [+ glottal] > Ø, removing implosive C; after which:
5. pre-Nubian *d > r. This shift also arose after one other major sound change deleting the dental/alveolar distinction (see Western Astaboran section of Table 4.6). Shift 5 was then followed by:
6. *t > d;
7. remaining PNS *NC > C; and then by:
8. *k, *kʰ > k; after which:
9. pre-Nubian *k > g /V_.

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10. pre-Dongolawi *ŋ (from PNS *ŋ and *ŋg by shift 3) > n /_-#, > ɲ elsewhere; after which:
11. pre-Dongolawi *ɲ (< *ŋ and *ɲ) > n /#_.

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12. pre-Dongolawi *f > Ø /#_, > w /V_V.

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13. pre-Dongolawi *NC[-voice] (remaining after shift 7) > NC[+voice] /V_V, > C /_#, > CC /V_(i)#; prior to:
14. pre-Dongolawi [-voice/-contin] > CC /V_(i)#, > [+voice] [-contin] /V_#.

Tama

1. PNS *d > r /V_# (sometimes /V_V, presumably where a suffix was added since the sound shift), > l /V_ elsewhere (see wider distributed shift 2 below).
2. proto-Taman *r (< PNS *r) > l /_-# (verb).
3. proto-Taman *NC (PNS *mb and *ŋg) > N /#_.
4. PNS *[-voice/-contin] > [+voice/-contin] /_# (provisional).

Nara

1. *ṣ > š /#i_V.
2. *d > r /V_#, > d /V_ elsewhere.

Gaam

1. PNS *pʰ > f, except in /V_C-, was followed by:
2. deletion of feature [±aspirated] (*[pʰ] > *p, *ʈʰ > *ʈ, *tʰ > *t, and *kʰ > *k). This shift preceded:
3. *ʈ' > *[c'] /V_. Shift 3 along with:
4. PNS *ʈ' > pre-Gaam *ɗ /V_; and:
5. PNS *p' > ɓ; each preceded:
6. PNS *C' > C /V_, C' = ejective; after which:
7. pre-Gaam *c > *š /V(N)_V, *ṣ [š] > c /_-# verb-stem final; which itself was followed by:
8. pre-Gaam *š > s. Also apparently predating shift 11—because PNS *nṣ and *ns in the available data give different recorded outcomes in Gaam—was:
9. PNS *NC > C. Shift 7 and:
10. PNS *k' > Ø /_[+front]; operated before:
11. a. deletion of feature [+glottal] (by which the implosives dropped out and remaining *ʈ' > *ʈ, *t' > *t , *ʈ' > *ʈ, and *k' > k);

with the leftover defectively distributed allophones of *ʈ' removed by:
b. *[ɗ] (allophone /#_i; see Commentary to Table 2.9) > j; and:
c. [*ʈ] (allophone /#_VC') > t. Postdating shift 12 came:
12. pre-Gaam *d (< *ɗ and *ḍ by shift 12) > [d] /_-# (verb-stem-final); followed by:
13. pre-Gaam *d (< PNS *ɗ, *d, *ɗ, and *ḍ by shifts 12-13) > r /V_. Operating subsequent to shifts 8 and 12 came:
14. deletion of distinction [±voice] /C(V)_ (/p/ > [b], /t/ > [d], /c/ > [j]); which preceded:
15. lenition of [+voice/-contin] /V_V and /V_-#, specifically [b] > w, [ḍ] > ɬ [ɬ], [j] > i, [g] > Ø ([b], [j], and [g] are preserved regularly in some morphological contexts and sporadically in intervocalic environments not yet accounted for); after which:
16. /ɬ/ + suff. in /t/ > [d] /_# (probably still productive). Three other shifts followed shift 9 above. First came:
17. *s > z /N_ (where *s was a suffix added since shift 9); and then:
18. PNS *z > j; followed, after shift 14 but before shift 16, by:
19. /j/ > /d/ in some /V_VC; and then:
20. deletion of feature [dental] /#_. An additional, probably quite recent shift created new /j/ in Gaam:
21. pre-Gaam *g > j, *k > c, *ŋ > ɲ /_[+front/+vocalic].

Bertha

1. PNS *k > *kʰ /#_; as well as:
2. PNS *tʰ > t in certain stem final environments, as yet unsatisfactorily defined; and also:
3. PNS * d > ǰ (for pre-Bertha *tʰ (< PNS *ʈ and *tʰ) > *č, see Jebel rules 1 and 2 in Table 4.6); preceded:
4. PNS (and pre-Bertha) *pʰ > f, *ʈʰ and *tʰ > θ, *č > *š, *kʰ > *x; followed by:
5. *x > h; and then by:
6. h > Ø /_#. Shifts 1 and 2 also preceded:
7. [+tense/-voice/-cont] > [+voice/-cont] (PNS *p > b, *ʈ > *ḍ, *t > d, *k > g); which came before:
8. [palatal] > [dental] (pre-Bertha *ɗ > *ɗ, *ʈ > *ʈ, *ǰ > *ð, *š > *θ). This shift preceded:
9. /ɗ/ (< pre-Bertha *ɗ and *ɗ) > r, /d/ > rr, /V_# and /V_(V)C. This shift as well as:
10. *ɬ > r /V_, preceded:
11. [+voice/dental] > [+voice/alveolar] (pre-Bertha *ɗ > ɗ, *ḍ > d, *ð > z, *ɬ > l); which was followed by:

12. *ŋ > Ø /_C, C = [-voice] or [+cont].

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13. PNS *r > r /#CV_#, > 1 /V_ elsewhere.
14. pre-Bertha *g > k /V_-# (only examples derived from PNS *k are known so far, however, so this formulation remains to be tested).

Nyimang

1. /r/ > [ɽ] /_i.
2. *d > r /_#.
3. *k > g /C_V.

Daju

1. PNS *t' > *tʰ , *t > *ṣ /#_; after which:
2. PNS *tʰ > *c, *d > *j; then:
3. [+palatal/-affricate] > [+alveolar/-affricate] (remaining PNS *t > t, *t' > *t', *ṣ > s, *ɗ > ɗ); after which:
4. PNS *θ > *š, *nð > *nj; subsequently:
5. *Cʰ > C; and:
6. PNS [+dental] > [+alveolar]; after that:
7. levelling of voicing distinctions in non-initial environments took place, by which *t > *d, *t' > *ɗ (the full determinants and consequences of this rule in the modern Daju languages remain to be fully worked out; also:
8. *ɗ, *d > *r in as yet insufficiently defined non-initial environments (including /_# ? See the wider distributed shift 2 below.); and:
9. pre-Daju *N < PNS *N and *NC[-voice/+tense] (see "wider distributed share sound shifts" VII below) > *NC[+voice] /#CV_VC-; and:
10. *k' > *k or Ø /#_ (determinants of alternants outcomes as yet unclear); > *k/*g /V_.

Nilotic

1. PNS *r > proto-Nilotic *ʀ /V_; cases of *ʀ /#_ may principally have been added via loanwords (e.g., root 1254); after which:
2. PNS *d > proto-Nilotic *r /V_. In addition:
3. proto-Southern Nilotic *1 > proto-Kalenjin *ʀ /#_V(C), V = ɛ or ɔ.
4. pre-proto-Southern Nilotic *g > PSN *ŋ /#_VL, L = *l, *r (< PNS *d), and *ɲ.

5. PNS *ŋ > early Western Nilotic *ɲ /#_ɛL only (L = *r, *l), but not, interestingly, before *i or *e.
6. A levelling of voicing distinctions in non-initial environments characterizes the obstruents of the Western Nilotic languages. The original patttern was probably voicing in intervocalic contexts and devoicing word-final, but changing stem-final morphology or recording conventions may sometimes obscure these results.

Wider distributed shared sound shifts

I.   Northern Sudanic (or Sudanic ?): PNS *b > *m /#rV_#.
II.   Eastern Sahelian: PNS *d > *r /#CV_# (word-final). This shift is visible in those Eastern Sahelian languages that did not collapse all non-initial *d with *r (it has been noted for Nara, Taman, Bertha, Nyimang, and apparently Daju). The former presence of this sound shift rule would of course be obscured in cases where subsequently the rest of non-initial *d became /r/. The shift may conceivably date back to proto-Sahelian, since PNS *d has become /r/ generally also in the For, Maban, and Songay languages, but it is specifically counterindicated for Saharan.
III. Possible Eastern Sahelian: PNS *ns > *ss, *nṣ > *ṣ. The attestations of this proposed shift remain few as yet, however.
IV.   Kir-Abbaian: PNS *mp > *m, *ŋk > *ŋ, consistently in all contexts. Replications of parts of this outcome turn up in some other Nilo-Saharan languages, but the environments, scope, and consequences of such shift are in each case different. Note that in Daju, the Kir-Abbaian *m < *mp and *ŋ < *ŋk reverts to a proto-Daju cluster *mb and *ŋg /#CV_VC- by the more general Daju rule 1 noted above. See also Kir-Abbaian sound shift in Commentary to Tables 3.1-3.4 for more on this sound shift.
V.   Kir-Abbaian: PNS *#iC# > *-Ci-, C = [-voice/+obstruent], with addition of any affixation (see roots 963, 1142, 1143).
VI.   Surma-Nilotic: PNS *ŋg > *ŋ in all environments. Only in the Surmic and Nilotic subgroups does this specific outcome for PNS *ŋg appear.
VII. Surma-Nilotic: (1) PNS *nd > *d; followed by:
VIII. Surma-Nilotic: (2) PNS *r > *ʀ /V_ (*ʀ = flap/trill of uncertain articulation, > Surmic *L, Nilotic *ʀ); and then:
IX.   Surma-Nilotic: (3) Surma-Nilotic *d > r /V_.

CHAPTER 3

VOWELS AND TONE IN PROTO-NILO-SAHARAN

The proto-Nilo-Saharan (PNS) language is reckoned here to have had seven vowels, occurring both long and short, and provisionally to have had three tones.

PNS Vowels

The seven short vowels can be represented as *i, *e, *ɛ, *u, *o, *ɔ, and *a. Their long equivalents are *i:, *e:, *ɛ:, *u:, *o:, *ɔ:, and *a:. Vowel length is retained in Songay, For, Bertha, Nubian, and Southern Nilotic, among others. That length is original to PNS is shown by the regular correspondence of long and short vowels among these languages and the existence of consistent qualitatively distinct outcomes for long and short vowels in a number of Nilo-Saharan languages that lack the length distinction today. For example, in proto-Central Sudanic (PCS) the long mid vowels produced high vowel reflexes—*e: of Southern Nilotic or Nubian corresponds to PCS *i, in other words, while *o: matches up with PCS *u.

An interim reconstruction of PCS with seven simple vowels—*i, *e, *ɛ, *u, *o, *ɔ, and *a—along with a variety of diphthong-like vowel sequences, has been followed here (Ehret MS). Whether this system is sufficient to explain all the vowel outcomes in all the various Central Sudanic languages remains to be determined. But it does accord well with the correspondences between its distantly-related Moru-Madi, Mangbetu, Aja, and Bongo-Bagirmi subgroups, and it accounts very well indeed with the observed correspondences of Central Sudanic roots with cognate forms outside that branch.

In a number of modern Nilo-Saharan tongues, such as Songay, For, and the Nubian, Daju and Koman languages, this system has simplified to five vowels, in Daju and Koman with additionally the loss of vowel length. For Songay as well as proto-Nubian, the seven vowels became five through the collapsing of the three low vowels, *ɛ(:), *ɔ(:), and *a(:), as *a(:). In Uduk of Koman, in contrast, an asymmetric merging of *ɛ(:) with *a, but of *ɔ(:) with *o, accounts for the outcome. Daju and For show a third pattern, in which *ɔ(:) and *o(:) fall

together as do *ε(:) and *e(:). Still a fourth course of simplification to five vowels can be perceived in Kunama. There the short mid vowels, *e and *o, became one with *a, while long *e: and *o: were raised to *u: and *i: respectively, leaving PNS *ɔ(:) and *ε(:) to fill the vacated slots of *o(:) and *e(:).

Whether phonemic vowel length in the Kunama language perdures from PNS remains to be worked out. Bender (1971 and elsewhere) records long vowels for it, but the evidence in the Kunama dictionary (Castelnuovo 1950) seems to account quite well for the Kunama correspondences without distinguishing vowel quantity. It appears from Thompson's (1989) materials that vowel length, like consonant length in Kunama, may most often reflect the coalescence of underlying or formerly distinct segments, such as a vowel and a glide.

For another Nilo-Saharan language, Kanuri, the disappearance of vowel quantity distinctions eventuated in a seven-vowel patterning quite unlike that of PNS, namely, **i, u, e, o, ə, a**, and **ɑ**, and unusual in its sources. The four non-central members of the set all normally derive from PNS long vowels, respectively *i:, *u:, *ɔ:, and *ε:, whereas the high central vowel **ə** conflates several PNS vowels, both long and short, namely *u, *e, *e:, *o, and *o:. The low vowel **ɑ** reflects in most environments just PNS *a; its counterpart **a** derives from the falling together of one long and two short PNS segments, *a:, *ɔ, and *ε. The comparative data, in other words, confirm Jarrett's (1978) conclusions for Kanuri, reached using the methods of internal reconstruction.

These correspondences and their bases in the PNS vowels can be seen with greater clarity in Table 3.1. The possibility that Kunama maintains phonemic vowel length from its earlier PNS ancestry is denoted by queried long vowels in parentheses (vowel length is not marked in Castelnuovo 1950).

Table 3.1. **Sample of PNS vowel correspondences**

PNS	Uduk	PCS	Kunama	Kanuri	Songay	Dongolawi
*u	u	*u	u	ə	u	u
*u:	u	*u	u (u: ?)	u	uu	u:
*o	o	*o	a	ə	o	o
*o:	o	*u	u (u: ?)	ə	oo	o:

Table 3.1. **Sample of PNS vowel correspondences (continued)**

PNS	Uduk	PCS	Kunama	Kanuri	Songay	Dongolawi
*ɔ	o	*ɔ	o	a	a	a
*ɔ:	o	*ɔ	o (o: ?)	o	aa	a:
*i	i	*i	i	ə	i	i
*i:	i	*i	i (i: ?)	i	ii	i:
*e	e	*e	a	ə	e	e
*e:	e	*i	i (i: ?)	ə	ee	e:
*ε	a	*ε	e	a	a	a
*ε:	a	*ε	e (e: ?)	e	aa	a:
*a	a	*a	a	ɑ	a	a
*a:	a	*a	a (a: ?)	a	aa	a:

In Songay *ɔ(:) and *ε(:) became respectively /o(o)/ and /e(e)/ (instead of usual /a(a)/ in one set of environments, /#(C_)C_(N)#/ (see Songay rule 13 in Commentary to Table 2.9). Additional Songay /e(e)/ were also recreated in many cases in the language by the raising of pre-Songay *a(a)—including instances of *a(a) deriving from PNS *ε(:) and *ɔ(:)—in the environment of a historically more recent high-vowel suffix, either in -i or in -u. The shift was not limited to pre-Songay *a(a), but also raised the mid vowels, *e(e) > i(i) and *o(o) > u(u) (see Songay rule 15 in Commentary to Table 2.9). It apparently ceased to be productive early in the development of Songay because in other instances *a(a) persisted despite the addition of -i or -u suffixes. The persistence of pre-Songay *a(a) in these cases shows that the suffixes were added after the sound change no longer operated. Finally, at a still more recent point in time, Songay developed a general word-final CV syllabic structure, requiring final vowel in all words not ending in /w/, /y/, or a nasal. This structure required the adding a word-final V

that replicated the preceding stem vowel, whenever the word in question did not already end in a vowel.

Contrasting with the reduction of the PNS vowel system in such disparate languages as Songay, Human, Uduk, and Kanuri, an expansion of the array of vowel distinctions took place in Rub and also in Nilotic and some of its cousin subgroups in Eastern Sahelian (formerly Eastern Sudanic). For Rub and Nilotic, these changes seem certainly attributable to the phonological histories of the language groups involved, although many aspects of those histories remain as yet obscure.

Eleven proto-Rub vowels—*u, *ʊ, *ọ, *o, *ɔ, *i, *ɪ, *ẹ, *e, *ɛ, and *a—have been given interim status in Heine's (1976) reconstruction, but future work may well show some of these distinctions to be allophonic. In addition, proto-Rub had several diphthongs, among them *iu, *eo, *uo, *ɛɔ, and *uɔ, created by deletion of nasality in a following erstwhile nasal cluster, i.e., *CVNC$_2$ > proto-Rub *CVVC$_2$, at least where C$_2$ = [-voice] (see proto-Rub sound shift in Commentary to Tables 3.1-3.4).

Proto-Nilotic (PN) possessed apparently a system of nine, or perhaps ten, vowels, each one occurring both short and long. For proto-Southern Nilotic ten vowel qualities, each with a long and a short version, have been reconstructed on the morphophonemic level (Rottland 1982). The ten vowels consist of five ±ATR pairs, *u and *ʊ, *o and *ɔ, *i and *ɪ, *e and *ɛ, and *ɑ and *a. (Rottland 1982 represents the first member of the last pair as *a and the second as *ɑ; in Rottland 1989, however, they are revised to respectively *a and *ʌ. The segment /ɑ/ is actually heard as [ɔ]; hence it seems better here to reserve the symbol a for its -ATR mate, Rottland's *ɑ or *ʌ.)

The beginnings of the development of the Nilotic systems probably go back to what were originally allophonic variants in the early Kir-Abbaian period. Specifically, [ʊ] and [ɪ] emerged initially as allophones respectively of *ɔ and *ɛ in the environment of a following nasal cluster (see Kir Abbaian shift V in the Commentary to Tables 3.1-3.4). The deletion of these governing environments (see Kir-Abbaian shift IV in the Commentary to Table 2.10), along with the possible regular realization of short *i as [ɪ] and short *u as [ʊ] (cf. the Gaam and Eastern Nilotic outcomes in particular), could have produced phonemic *ɪ and *ʊ already by the end of the proto-Kir-Abbaian period. The subsequent development of vowel harmony rules, along with the appearance of ±ATR category shifts in singular-plural formations in nouns—these latter shifts very possibly deriving from earlier Kir-Abbaian distinctions of vowel quantity between singulars and plurals (cf. the Gaam and Bertha plural formation pattern seen, for instance, in root

649 among several others)—and then the spreading of this phenomenon to other morphological alternances, completed the phonemicization of the vowel distinctions evident in PN.

The diphthongization so common in Western Nilotic languages, and the still more complex vowel array in Jyang of Western Nilotic, probably reflect all of the following: syllable loss, consonant deletions, dropping of vowel quantity distinctions, and umlaut and ablaut effects of lost vowel suffixes, during the pre-proto-Western and proto-Western Nilotic stages. The shifts of PN *o > *u and *ɔ > *ʊ evident in several Western Nilotic instances in the Etymological Dictionary were consequences of grammatical processes as yet unexplored; and cases of unexplained *o > *u and *ɔ > *ʊ in Eastern Nilotic languages again probably reflect such processes or, in some instances, perhaps unusual vowel harmony effects. The details of these developments should be of major interest to future scholarship, but cannot be resolved here.

Diphthongs and sequences of glide plus vowel in PNS roots

The PNS vowels could co-occur with adjacent glides in two different formats in the PNS language. One took the shape #CwV(C)# in which PNS *w preceded a vowel medially in a root. The other had the shape #CVG(C)#, where G could be any of the four glides, *w, *'w, *y, or *'y, and followed the vowel.

In the first of these two formats, V seems most commonly to have been PNS *a(:) or a front vowel, but there appear also to have been a few examples of *ɔ(:) and *o(:), almost but not quite wholly restricted to cases of a velar or labial as the preceding consonant. The shape #CwV- was preserved in very few languages, most notably in the Western Nilotic and to some extent the Southern Nilotic languages, in certain of the Eastern Nilotic languages, in the Hill Nubian tongues, and in Uduk of the Koman branch. In PCS, *w apparently persisted in conjunction with some velar C and in a few other limited instances, but not elsewhere. Almost everywhere else in Nilo-Saharan, *wV- /#C_ simplified to a vowel, most often back rounded. The reconstructions for some of these medial sequences, especially *wa and *wa:, are strongly based; other sequences, less often attested in the available data, must be considered much more provisional postulations, at least as to their specific realization in PNS. For a laying out of these data, see Table 3.3 and the Commentary to Tables 3.1-3.4, both at the end of the chapter.

Similar comments can be made about the second pattern of glide-vowel occurrence, #CVG(C)#. Although a number of languages main-

tained such sequences as diphthongs or, in the case of the glottalic glides, sometimes as vowel-plus-consonant, again the more common result was for the sequence to simplify to a vowel, usually back rounded when G was *w or *'w and, contrastively, front unrounded when G was *y or 'y. On the other hand, the correspondence patterns for the particular reconstructed vowel-plus-glide sequences, as depicted in Table 3.4 at the end of the chapter, tend more often than not to be fairly solidly identified.

PNS Tones

PNS can be provisionally reconstructed to have had three phonemic tones, high, mid, and low. The reconstruction for now must be based on the few Nilo-Saharan languages for which good tonal marking and a sufficient body of evidence exists. The primary data for tone reconstruction come therefore from Uduk of Koman, Kanuri of the Saharan group, Songay, and Gaam of Kir-Abbaian. Several other languages, among them For, Bertha, and Maasai, provide some additional useful tonal data.

All three proposed tones seem to be preserved in Gaam, as high, mid, and low; and it appears from the Southern Nilotic evidence that proto-Southern Nilotic also had three tones, although differently distributed, probably as high, low, and falling. Unfortunately, the tonal reconstruction of particular Southern Nilotic roots has not been systematically undertaken, so it remains uncertain what the specific correspondences of the Nilotic tones to the PNS system are and whether the three tones have actual one-to-one correspondences to the proposed three PNS tones or not. The Uduk evidence highlights this latter concern. Uduk has in fact three phonemic level tones (Thelwall 1983), but they derive from rephonemicization of what was in pre-Uduk a two-tone system, the high tone collapsing the proposed PNS high and mid tones in single-syllable stems and the low tone preserving the PNS low tone.

A layout of the diagnostic tonal correspondences in one-syllable words and verb stems appears in Table 3.5. A number of morphological operations, however, apparently could cause tone shift in stems. These, where they can so far be recognized, along with tone shifts occasioned by phonological factors are noted for the diagnostic languages in the Commentary to Table 3.5.

Vowels and Tone in Proto-Nilo-Saharan

Table 3.2. Basic vowel correspondences of Nilo-Saharan

	*u:	*u	*o:	*o	*ɔ:	*ɔ	*i:	*i	*e:	*e	*ɛ:	*ɛ	*a:	*a
Uduk	u	u	o	o	ɔ	ɔ	i	i	e	e	a	a	a	a
PCS	*u	*u	*u	*o	*ɔ	*ɔ	*i	*i	*i	*e	*ɛ	*ɛ	*a	*a
Kunama	u	u	u	o	o	o	i	i	i	e	e	e	a	a
Kanuri	u	ə	ə	ə	o	ə	i	ə	i	a	e	ə	a	ɔ
For	ũ	ũ	ɔ̃	o	ɔ̃	o	ĩ	ĩ	ee	e	ee	e	aa	a
Songay	uu	u	oo	o	ɔɔ	ɔ	ĩ	i	ee	e	ee	e	aa	a
Maba	u	u	o	o	aa	o	i	i	e	e	aa	e	a	a
Dongolawi	u:	u	o:	o	a:	a	i:	i	o:	o	a:	ɔ	a:	a:
Tama	i:	u	o:	o	ɔ:	o	i:	i	e:	o	o:	a:	a:	a:
Nara	u	u	o	o	o	o	i	i	e	e	e	o	a	a
Gaam	u	u	o	o	ə	o	i	i	e	e	ə	ə	a	a
Bertha (M)	u:	ə	o:	o	o:	o	i:	ə	o:	o	o:	o	a:	a
Daju	*u	*ə	*o	*o	*o	*o	*i	*i	*e	*e	*o	*e	*a	*a
Nilotic	*u	*ə	*o:	*o	*o:	*o	*i	*i	*e:	*e	*ɔ:	*ə	*a:	*a:
PENil	*u	*u	*o	*o	*ɔ	*o	*i	*i	*e	*e	*ɛ	*ɛ	*a	*a
PSNil	*u:/o:	ɔ/ʊ	ɔ/ʊa	ɔ/ʊa	ɔ/ʊa	ɔ/ʊa	*i:/i:	*ʊ/*i	*e:	e/iɛ	ɛ	ɛ	*a:/a:	a
Shilluk	ʊ/u	ɔ/ʊ	ɔ/ʊ	ɔ/ʊ	ɔ/ʊa	ɔ/ʊa	i/iɛ	i/iɛ	e/iɛ	e/iɛ	ɛ	ɛ	ä	ä
Rub	*u	*u	*o	*o	*ɔ	*ɔ	*i	*i	*e	*e	ɛ	ɛ	*a	*a

Table 3.3. Medial glide-plus-vowel correspondences of Nilo-Saharan

	*wa	*wa:	*wɛ	*wɛ:	*we	*we:	*wɔ	*wɔ:	*wo	*wi	*wi:
Uduk	wa	wa	wa	wa	wa	wa		wo	oo	i	u
CSud	*ɔ	*a	*o	*u		*wi	*ɔ	*u	*u	*i	*u
Kunama	o	u	o	a	u	u	o	u	u	u	u; i/_-#
Kanuri	o	a	o	ə	ə	ə	u	ə	u	ə	u
For	o	o		oo	e	ii	o	uu	o	i	uu
Songay	o	oo	u	oo	e	oo	u	aa	o	u	i
Maba	u	u	u	u	e					i	i:
Dongolawi	a:	o:	o:	o:	u:	u:	u:	u:		u:	
Diling	wa	wa	wa	wa	u				o	wo	e
Tama	ɔ			a:	i		o	o:	u	i	
Nara	o									u	
Gaam	ə	ɔ	ɔ	ɔ	ə̈	ə̈				u	
Bertha			u	e:	u	u:		o		i	ʊ:
Daju					i, ii						
Nilotic	*wa	*wa:		*wɛ:	*we	*we	*wɔ	*wɔ:		*wi	*wi:
Ik (Rub)	ɔ	ɔ	ɔ		o	u	ʊ		o	*ʊ	*i
Rub /C[velar]_	*wa	*wa	*wɛ	*wɛ	*wɛ					*u	*i

Table 3.4. Vowel-plus-glide correspondences of Nilo-Saharan

Section 1: *VW sequences

	*aw	*a:w	*a'w	*a:'w	*ɔw	*ɔ:w	*ɛw	*ew	*iw	*i:w
Uduk	a	a	a	aa				aw	i	
PCS	*a/ɔ	*ɔ/*o	*ɔ	*ɔ		*ɔ			u	*wi
Kunama	o/au	au	au	au	u		ew	eu		u
Kanuri	ə	au	o	a			aw		ə	
For	a	oo			u	u	u, uu	u	i	u
Songay	u	aa	u	aa			aw		i	
Maba	o	a	ab						u	
Dongolawi	o:									i:w
Tama	aw	aw	a:							
Nara	u	u	aw							
Gaam	ə, ɔ	aw		ɔɔ						
Bertha	o	a:								
Nilotic	*ɔ	*ɔ:	*ɔ	*ɔ:	*o	*o:		*u:		
/_-#	*aw	*a:w	*aw	*a:w						
Rub	*ɔ	*ɔ	*ab						*i	iw

Table 3.4. Vowel-plus-glide correspondences of Nilo-Saharan (continued)

Section 2: *VY sequences

	*ay	*a:y	*a'y	*a:'y	*ɛy	*ɛ:y	*ey	*e:y	*oy
Uduk	a, aa	ee, e	a	e	i	ii, i	i	ii	*oi
PCS	*ɛ	*ɛ	*ɛ	*a	*iʰ	*e	e, i / *iʰ	*iʰ	
Kunama	e, ei	ai	ai	i /_#	i	i	e	i	
Kanuri	e, ai	i, ai, a	ai	ii	ə	e	ə	i	
For	ai	e	aa	e /_#	ee	ii	i	ii	oy
			a /_CC						
Songay /_#	e / ey		e / ey		i / ey	e:	i	e	
Maba		aa	a		ey	ɔ:	ey	e	
Dongolawi	ɔ:	ey	ey	i:	i, e	ɔ:	i, e		e, o
Tama	a, ai	e	a	i:	i:	ɛ	i:	ee	uu
Nara	ə, əi	e	ɛ:	ɪ:	e	e	e	e, ee	
Gaam	e:	e	e		i	e:	i	*i:	
Bertha	a	*ɛ:	ee, ii /_a		e	*ɛ:	*e	*ee	*o
Daju			e:		*e		*ey		
Nilotic /_#	*ay / *ɛ	*a:y / *e	a	a:y	*ay / *iʰ	*a:y	*ay / *iʰ		
Rub		*e	*ay		*iʰ	*e	*e		

Vowels and Tone in Proto-Nilo-Saharan

Commentary to Tables 3.1-3.4

Uduk

1. PNS *ɔ > pre-Uduk *o; followed by:
2. pre-Uduk o > a /#kʰ_C(VC)#, V not = u; followed by:
3. pre-Uduk *o > u /#C₁_C₂, C₁ = [-voice], C₂ = palatal or *θ (and also /#C₁_la' in root 818?); and by:
4. pre-Uduk *o > u /#C_(N)K, K = k, kʰ, or k'; and by:
5. pre-Uduk *o > u /#N_ ṭ'. Also, the three shifts:
6. PNS *e(:) > pre-Uduk *ɛ(:) /#Cw_; and:
7. PNS *ɛ(:) > pre-Uduk *e(:) /#C_(h)#; and:
8. PNS *ɛ > e /#C₁_C, C₁ = [palatal/-voice/-cont]; and:
9. PNS *ɛ(:) > e(:) /#b_b (one example, no counter-example); each preceded:
10. PNS *e > i, *ɛ > e /#ṭʰ'_C and /#t_C (but not *e: or *ɛ:); after which:
11. PNS *V: > pre-Uduk *V; after which:
12. pre-Uduk *ɛ > a; and also:
13. pre-Uduk *e > i /#ɗ_C and /#C_(n)D (examples of D = *d and *ɗ are known); as well as:
14. pre-Uduk *e > o, *i > u /C₁_C, C₁ = [+velar]; followed by:
15. pre-Uduk *o > u /#W_C, C = labial; and by:
16. V₁ > V₂ /#C_NCV₂S, one V = i or e, other V = o or u, S = sonorant. Shift 11 took place before Uduk shift 1 in the Commentary to Table 2.9, since it is counterindicated for PNS *ɗ.
The shifts *o > a , noted for /#ɗ_ŋk_l and /#c'_p' (roots 200 and 948), if regular, preceded shift 1.

----

17. PNS *ay > aa, *a:y > ee, *ɛ:y > i /#C_C; elsewhere *ay > a, *a:y > e.

PCS

1. PNS *a(:)y > pre-PCS *ɛ; was followed by:
2. PNS *ɛ > PCS *e, *ɔ > *o /#c_ (< PNS *T_s) and #ş_; which along with:
3. PNS *o > pre-PCS *ɔ, PNS *e > pre-PCS *ɛ /#N_N and /NC_C, NC < PNS *NC; and:
4. PNS *ɔ > PCS *o, *ɛ > *e /#C_NC; each preceded the collapsing of PNS *CV(N)C stems to PCS *CV by the PCS shifts 1-9 of the

Commentary to Table 2.9, because their governing environments all included final consonants deleted by those shifts 1-9. Three further vowel shifts:

5. PNS *ɔ > PCS *o, *ɛ > *e /#GB_ (GB = PCS *gɓ, *gb, or *kp); and:
6. PNS *ɔ > PCS *o, *ɛ > *e /#ndr_; and:
7. PNS *o > PCS *ɔ /#C_#, C = PCS affricates *dr, *tr, *ts, *c, *dz, or *j, could well, in contrast, have followed the shifts depicted in the Commentary to Table 2.9; but they and also:
8. PNS *o: > pre-PCS *u:, *e: > i:, both preceded:
9. PNS *V: > PCS *V, collapsing long and short vowels.

Kunama

1. PNS *ɛ > i /#m_l-; may have preceded:
2. PNS *e > pre-Kunama *ɛ /#l_l, which came after Kunama shift 9 in Commentary to Table 2.10, by which *r > l /#lV_; but it, as well as:
3. PNS *o > u /*#ɓ_ɓ (one example, no counter-examples) preceded Kunama shift 4 in Commentary to Table 2.9, by which PNS *e and *o > a.

----

4. PNS *u > i /#r_K.
5. #Cih/y- + -aC > #CiC.
6. PNS *ay > ei /_-#.

For the remaining Kunama vowel outcomes, see shifts 1, 2, 18, and 19 of the Commentary to Table 2.9.

Kanuri

1. PNS *ɛ(:) > *a(:), *e > ɛ /#S_ in pre-Kanuri, S = sibilant (examples of *ş and *s are known); as well as:
2. PNS *o > pre-Kanuri *ɔ: /#k_(C) and also:
3. PNS *o: > pre-Kanuri *u: /#C_r, before Kanuri shift 13 of Commentary to Table 2.9.
4. Pre-Kanuri *a (< *ɔ and *-ɛ) > ɑ /#C_C_#, came after Kanuri shift 13 of Commentary to Table 2.9.
5. V > Ø /#_CVC.
6. PNS *ay > e, *a:y > ai /_#.

Songay

1. PNS *ɔ > u /#C_- + -na#.

2. *V: > V /#C_C(_)CV. (See also Songay rules 13 and 15 from Commentary to Table 2.9)

For

1. PNS *o > *ɔ /#j_C; after which:
2. Pre-For *ɔ > a /#C_1_(C)- verb, C_1 = [+voice/-contin/ +obstruent]; then:
3. PNS *ɛ(:) > *e(e), *ɔ: > *o(o); followed by:
4. *VV (PNS *V:) > V /#C_C(V)C; followed by:
5. pre-For *o > u, *e > i /C_L(_)C, L = liquid.

----

6. PNS *o > a /#j_C (j < *G).
7. PNS *ay > e /_-#.

Maba

1. PNS *V: > V apparently preceded:
2. pre-Maba *e > a /#C_m (also *o > a ?), which itself may have preceded shift 3; and:
3. pre-Maba *o > u, *e > i /#C_S(C), S = sonorant, other than *m; and:
4. pre-Maba *e > i /#C_(w/ya)(-)# (some /#C_h ?); and:
5. pre-Maba *e > a /#C_h, C probably = subset of Maba consonants still to be defined; and:
6. pre-Maba *o > u /#k_s.

----

7. a, i > u /#C_C- + -u(C)- v. extension.

Dongolawi

1. PNS *ɔh > o /#_#; after which:
2. PNS *ɛ(:), *ɔ(:) > a(:) (already in proto-Nubian).

----

3. *V: > V /_C, came before:
4. CwV > CV: /#_C. This shift took place after the proto-Nubian period. Dongolawi outcomes: PNS and PNub *wa > a:, PNub *wa: (< PNS *wa:, *wɛ, and *wɛ:) > o:, while other PNS/PNub *wV > u: (see Diling data in Table 3.3 for evidence of PNub retention of a number of medial *w).

----

5. PNS *e > i, *o > u /#C_L, L = liquid.
6. PNS *o > u /*C_ŋk.

7. PNS *i > ε /#_rC.
8. PNS *i > ε /#d,d̠_s (after shifts 4 and 6 of the Commentary to Table 2.10, by which PNS *ɗ and *t became pre-Nubian *d).
9. pre-Nubian *sVk > Vsk /#_, V = [+front] (*s < PNS *s and possibly *θ; counterindicated for other V and other sibilants).

Tama

1. V > V: /#C_r(V)n (also /#w_s-? See root 1416).

Gaam

1. pre-Gaam *u > *u, *i > *i /C_(C_)r, *u > *ʊ, *i > *ɪ elsewhere; and:
2. PNS *ε(:) > *e(:) /#C_L, L = liquid; and:
3. PNS *e: > *i: /#b_ɬVn (one example, no counter-examples); and:
4. PNS *o(:) > *u(:) /#C_r, C = d, d̠, t; and:
5. PNS *o > *u /#c_l (for pre-Gaam *c, see proto-Jebel rule in Commentary to Table 2.9, under "Wider distributed shared sound shifts," VIII); and:
6. PNS *o(:) > *u(:) /#C_CuC; all followed Gaam shift 1 in Commentary to Table 2.9 and Gaam shift 13 in Commentary to Table 2-10, and all preceded:
7. PNS *ɔ > a: /C_wn-; and:
8. PNS *e > *ε, *o > *ɔ /#C_L, L = liquid; which came before:
9. pre-Gaam *ɔ(:), *ε(:) > ə(ə), *o(:) > ɔ(ɔ), *e(:) > ε(ε). These shifts, along with:
10. PNS *a > ə /#C_S, S = sonorant (some *a: > ə /#C_w/f, but determinants unclear); and:
12. PNS *e: > pre-Gaam *i: > i /_h, or pre-Gaam *e: > i: /_h; all preceded the shift:
13. a. V: > V, removing most cases of distinctive vowel length, except for:
    b. V: > VV /#C_S(V)#, S = sonorant (reconstructible low tone environment); and also:
    c. V: > VV /#k_s(V)#; and also:
    d. V: > VV /_G (where G = PNS *y, *'y, *w, or *'w. After these sound shifts, new /e/, /ee/, and /ɔɔ/ were created in Gaam by rules affecting VY and VW diphthongs. The specific outcomes of the cases so far identified appear in sections 1 and 2 of Table 3.4.

Bertha

Note that, although Bender (1989a: 272) says that "lax vowels are not distinctive," the comparative data of Table 3.1 indicate the opposite for two of those vowels, short /ε/ and /ɔ/, although not for their long equivalents or for any other members of that category, long or short.

1. PNS *ɔ: > o:, *ε: > e:, came before:
2. *o: > u /#(V)L_(-)#.
------
3. *o > ɔ, *e > ε /k'_l; followed by:
4. *ε > [ɪ] ~ [i] /#C_l (lacking in cases of C = sibilant, because of Jebel rule VII cited in Commentary to Table 2:10). Also:
5. *e > ε /#C_h#.

Daju

1. PNS *ɔ > *o, *ε > *e; and:
2. pre-Daju *o > *a /ɓ_g (after Daju shift 3 of Commentary to Table 2.10 ?); and:
3. pre-Daju *o > *a /#C_L, C = *c, *s, L = *l, *r; and:
4. pre-Daju *o > *a /#L_ŋ and /#ɗ_C_ŋ (full environment is still to be worked out); and:
5. pre-Daju *e > *a /#C_L, C = voiced labial (cases of *b and *m are known); and:
6. pre-Daju *e > *a /#ɲ_b (after Daju shift 7 of Commentary to Table 2.9). Also:
7. pre-Daju *i, *u > *ə /T_S, S = sonorant; and:
8. PKA *i > proto-Daju *e /T_C (T = *tʰ, *t').

Nilotic

1. PNS *e > *ɪ /#r_D#, after PNS *d > pre-PNil *ʀ; D = *ɗ, d̠, and *d̠.
2. PNS *VN > V: /C_C (Surma-Nilotic shift?).
3. PNS *i > *ε/*e /p_L (L = *l, *ɬ) after PNS *p' > PNil *p.

The most common vowel outcomes for the Nilotic branches are noted in the table. The determinants of particular reflexes, especially in the Western and Southern branches, remain generally still to be discovered. For Western Nilotic the loss in pre-Western Nilotic of earlier suffixal vowel morphemes and of vowel length probably account for most of the variety. In addition, there may

be other still-to-be-identified, common Nilotic shifts like shift 1 above, of restricted phonological distribution.

Rub

1. PNS *o > *u, *ɔ > *ʊ /#C_C, C not = voiced stop; possibly followed by:
2. PNS *ɛN > *ɛɔ, *eN > *eo, *uN > *uɔ /#C_C (and probably others still to be discovered).
3. PNS *o > *u /#C_B, B = labial obstruent; and also:
4. PNS *o > *u /#t_d (/t/ and /d/ are Rub outcomes).

Wider distributed shared sound shifts

I.   Sahelian: PNS *u > *i /#Y_C#, C undefined as yet.
II. Eastern Sahelian: PNS *ɛ, *e > e ~ a /#N_S(V), S = *l or nasal, V not = i, u ? This shift occasionally does not appear in a particular language's reflex, or else in one instance alternative words with *e and *a respectively turn up (root 260, Kalenjin reflexes). Why such variants occur is generally not overtly apparent; but some kind of elided suffixation containing a high vowel, for example, the *i andative or *-uh venitive, is a possible candidate (as in the Kalenjin example in root 260).
III. Kir-Abbaian (or Eastern Sahelian?): PNS *#Vŋ(g)# > #ŋ(g)V# (roots 517, 554).
IV. Kir-Abbaian: PNS *ɛ(:) >*ɪ(:), *ɔ(:) > *ʊ(:) /#C_N(C₂)#, C₂ = [-voice]; followed by:
V.   Kir-Abbaian: PNS *NC > N /#CV_, NC = PNS *mp or *ŋk (for this shift see also Commentary to Table 2.10, wider distributed shift IV); followed by:
VI. Kir-Abbaian: remaining PNS *NC > C, where C = [-voice].
VII. Kir: PNS *e > i /#C_d(-)#. Examples of C = *p' and *k have been noted, suggesting that C = some portion of PNS voiceless stops.
VIII. proto-Jebel: PNS *i(:) > *ɛ(:) /#S_l, S = sibilant.
IX. proto-Jebel: PNS *ɔ > *a, *o > ɔ /#K_C₂, C₂ = [-voice].

Table 3.5. Selected tonal correspondences in Nilo-Saharan

	Uduk	Kanuri	Songay	For	Gaam	Bertha	Ik
high	´	´	´	´	´	´	´
mid	` or ¯	´	`	´	¯	`	¯
low	` or ¯	`	`	`	`	`	`

Commentary to Table 3.5

The tonal correspondences shown in Table 3.5 obtain in unmodified #CV(C)# stems. With morphological additions, a variety of tonal shifts can be charted in the different languages. The shifts of Gaam and For appear to be few; in the case of For, but possibly not for Gaam, this situation is surely an artifact of insufficient data.

In general, observed occurrences have been noted in this commentary, rather than systematic tone-shift rules. Clearly there are deep-level rules at work here; and some of these, judging from the recurrent effects, for example, of certain suffixes in raising the tone of low-tone stems, or lowering high stem tones, are anciently productive synchronic rules. The establishment of such rules will have to await future studies and, in particular, the wider development of systematic tonal grammars of particular Nilo-Saharan languages.

But their consequences are often widely visible now. Among them are rules that are apparently of PNS provenance; e.g., the raising of low and mid stem tone, and lowering of high tone, upon addition of the PNS *a- attributive noun/adjective prefix (Chapter 6, affix 54), and the parallel effects of adding a suffix in *-Vh (Chapter 6, affixes 49-52). These environments of tonal shift are attested not only in PNS and in Sahelian roots, but separately evinced right across the family—in Uduk (Uduk rules 6 and 7 below), Kanuri (Kanuri rules 1.d, 2.a3, and 3.d), Songay (Songay rules 1-3), For (For rules 1 and 3.a), and Ik (Ik rules 1.b and d, 2.b, and 3). As well, the addition of a variety of sonorants and obstruents suffixes (for which see Chapters 5-7) seems from an early period to have effected other kinds of shifts in stem tone. The range so far attested of examples of this latter sort are listed below for the PNS, Northern Sudanic, Saharo-Sahelian, and Sahelian stages of the evolution of the family (see Chapter 4 for this clas-

sification), and from individual languages (see below Uduk rules 1-5, Kanuri rules 1-3, Songay rules 4 and 5, Gaam rules 1-3), Bertha, and Ik rules 1-2).

In pre-Uduk the PNS mid and low tones fell together in #(C_1)V(C) syllables (Uduk rules 1 and 2), both producing a low-tone reflex where C_1 was a voiced, minus-glottal consonant, and a mid-tone result elsewhere. Derivational processes then led to rephonemicization of this new three-tone distribution. The derivationally extended Uduk words in which tone-lowering took place can thus show either a low or a mid tone in the tone-shifted syllables, depending on the preceding consonantal environment.

PNS

1. a. *Cv́ + (V)h > Cv̄h.
   b. *Cv̀ + (V)h > Cv́h.
2. a. *Cv̄(C) + s > Cv́(Cv́)s.
   b. *Cv́C + r > Cv̄Cv̀r.
   c. *Cv́C + m > Cv̄C(v̄)m.

Uduk

1. * ⁻ > *ˋ; followed by:
2. *(C_1)v̀(C) > (C_1)v́(C), where C_1 = [+voice/-glottal]; > (C_1)v̄(C) elsewhere; which also followed Uduk shifts 3 and 4 of Commentary to Table 2.9.
----
3. stem plus suffixes -Vɗ, -Vš, -Vs, -Vl, -ila('), -ira', -uṭ':
   a. high-tone stem: *Cv́(C)+ Vɗ > Cv̀(Cv̀)ɗ/Cv̄(Cv̄)ɗ; *Cv́C(v́C)(v́C) + Vɗ > Cv̄C(v̄C)(v̄C)v́ɗ/Cv̄C(v̄C)(v̄C)v́ɗ, etc.;
   b. mid-tone stem: *Cv̄C + Vɗ > Cv̄Cv́ɗ; *Cv̄C + Vl > Cv̀Cv́l/ Cv̄Cv́l, etc.;
   c. low-tone stem: *Cv̀(C)(v̀C)(v̀C) + Vɗ > Cv́(C)(v́C)(v́C)v́ɗ; *Cv̄NC + ira' > Cv́NCírá'.
4. high-tone stem plus suffixes -Vn: *Cv́C + Vn > Cv̄Cv̀n/Cv̀Cv́n (> Cv́Cv̀n also has been noted in one case).
5. high-tone stem plus suffix -Vr: Cv́C + Vr > Cv̄Cv̀r /Cv̀Cv̀r.
6. mid-tone stem plus suffix -Vm: Cv̄C + Vm > Cv̀Cv̀m /Cv̄Cv̀m.
7. mid-tone stem plus suffix -(V)y: Cv̄ + y > *Cv́y (*Cay > *Cé).
8. low-tone stem plus suffix -(V)h: Cv̀ + h > *Cv̀'.

9. *a- attributive prefix plus stem:
   a. *a- + Cv́C(v́C) > àCv̀C(v̀C)/ àCv̀C(v̄C) + Cv́Cvn > àCv̄Cv́n/ àCv̀Cv́n);
   b. *a- + Cv̄C or Cv̀C > àCv́C.
10. reduplication in high-tone roots:
   a. *Cv́C > Cv́CCv́C, > Cv́CáCv̀C, Cv́CàCv́C > Cv̄NCv̄C/ Cv̄NCv̀C.
   b. *Cv́CvC > Cv́Cv̀CCv̀Cv̀C/ Cv̄Cv̄CáCv̄Cv̄C.
11. reduplication in mid-tone roots:
   a. *Cv̄C > Cv̄CCv̄C/ Cv̀CCv̀C, Cv̄CáCv́C/ Cv̀CáCv̀C.
   b. *Cv̄CvC > Cv̀Cv̀CáCv̀Cv̀C/ Cv̄Cv̄CáCv̄Cv̄C.
12. reduplication in low-tone roots:
   a. *Cv̀C > Cv́CCv̀C, Cv̀CáCv̀C;
   b. *Cv̀CvN > Cv̄Cv̄NáCv̄Cv̄N/ Cv̀Cv̀NáCv̀Cv̀ (N = nasal).

Northern Sudanic

1. *Cv̀ + *ṭ > *Cv́ṭ.

Saharo-Sahelian

1. *Cv̄ + *tʰ > *Cv̀tʰ.

Kanuri

1. high-tone stem:
   a. plus suffix in -Vm, -Vk, -as, -t(V), or -k(V): Cv́C + (V)C > Cv̀C(v̀)C(v̀);
   b. plus suffix in -Vl or -Vs (Vs not = as): Cv́C + V > Cv̀Cv́C;
   c. plus suffix in -ta, -ak, -Vp, -Vm:
      (1) *Cv́C + ta or VC > Cv̀Ctá, Cv̀Cv́C;
      (2) *Cv́CVC + Vm > Cv́Cv́Cv̀m;
   d. plus suffix in -uh, -ah: Cv́C + -u/a > Cv̀Cú/á.
2. mid-tone stem:
   a. plus suffix in -Vt, -k, -Vk, -V:
      (1) *Cv̄C + (V)C > Cv́Cv́C;
      (2) *Cv̄C + Vk > Cv̀Cv̀k;
      (3) *Cv̄C + Vh > Cv́Cv̀; + -a > Cv́Cá;
      (4) *kʰ- prefix plus mid-tone CV stem: *Cv̄ > kv́Cv̀;
      (5) *Cv̄C + Vl/r > Cv̀Cv̀l/r.
3. low-tone stem:
   a. plus suffix in -Vm, -Vs, -Vk, -Vt: Cv̀C + VC > Cv̀Cv́C;
   b. plus suffix in -Vl, -Vr: Cv̀C + VC > Cv́Cv́C;

  c. plus suffix in -Vi: Cv̀C + Vi > Cv́Cv̀ì;
  d. plus suffix in -V: Cv̀C + uh > Cv́Cú; + ih > Cv́Cì; Cv̀C + -à,
     sometimes > Cv̀Cá.
4. reduplication:
  a. in high-tone roots: *Cv́ > Cv́Cv̀; elsewhere tone remains high
     throughout; exception: Cv́C reduplicated plus -ah > Cv̀CCv̀Cá
     (i.e., rule 1.d above follows this rule);
  b. in mid-tone roots: Cv̄C > Cv́CCv̀C; Cv̄CV > Cv́Cv́Cv̀Cv̀; Cv̄
     > Cv̀Cv́;
  c. in low-tone roots: Cv̀ > Cv́Cv̀; elsewhere remains low
     throughout.

Sahelian

1. *Cv̀yn + ah > *Cv́ynàh.
2. *Cv̀(C) + s > Cv́(Cv́)s.

For

1. in high-tone stem:
  a. *a- + *Cv́ > àCv̀;
  b. *Cv́C + Vh > Cv̀Cv̀.
2. in mid-tone stem:
  a. *Cv̄C + Cv > Cv̀CCv́ (in adj.);
  b. *Cv̄C + ah > Cv̀Cà.
3. in low-tone stem:
  a. *a- + *Cv̀C- > àCv́C-;
  b. *Cv̀C + Cv > Cv̀CCv́;
  c. *Cv̀C + Vh > Cv́Cv́;
  d. *Cv̀ + t > Cv́t.

Songay

1. tone shift in #Cvh# stems:
  a. *Cv́h# > Cv̀# in nouns;
  b. *Cv̀h# > Cv̄# in verbs. These shifts preceded Songay shift 1
     in Commentary to Table 2.10.
2. stem plus *-ah, *-eh suffixes:
  a. *Cv́(n)C, *Cv̄(n)C + a, e > Cv̀(n)Cà/è; some *Cv́C + a >
     Cv́Cà;
  b. *Cv̄C + a > Cv̀Cà;
  c. *Cv̀C + a > Cv́Cà, sometimes Cv̀Cà.

3. stem plus *-i, *-u suffixes (*-i'y, *-ih, *uh ?):
  a. *Cv́C + V > Cv́Cú/í; also > Cv́Cv̀; some Cv́v + i > Cv̀vCí;
  b. *Cv̄C + V > Cv̀Cù/ì;
  c. *Cv̀C + V > Cv́Cù/ì; some Cv̀vC + i > Cv́vCí.
4. stem plus -ow, -ey suffixes:
  a. *Cv́C + Vw/y > Cv̀Cv́ẁ/ỳ; also sometimes > Cv́Cv́y;
  b. *Cv̄C + Vw/y > Cv́Cv́w/y, Cv́Cv́ẁ/ỳ;
  c. *Cv̀C + Vw > Cv́Cv̀w, + Vy > Cv̀Cv́y; also sometimes >
     Cv̀Cv̀y; *Cv̀ + y > Cv́y.
5. stem plus -(V)CV, -VC:
  a. *Cv́C + Vn(V), VrV > Cv̀Cv́C(v̀); *Cv́ + tV > Cv̀tv́; *Cv́C +
     (Vn)gV > Cv̀C(v̀n)gv̀; *Cv́C + Vm > Cv́Cv̀m; *Cv́C + kV >
     Cv̀Ckv́;
  b. *Cv̄C + Vr > Cv́Cv̀rv̀; Cv̄C + -Vm, -nV > Cv̀C(v̀)m/n(v̀); *Cv̄
     + tV > Cv́tv́; *Cv̄C + VntV > Cv̀Cv́ntv̀;
  c. *Cv̀C + (V)CV, VC > Cv́C(v́)Cv́, Cv́Cv́C(v́); + Vm >
     Cv̀Cv́m.
6. reduplication:
  a. in high- and mid-tone roots: all high;
  b. low-tone roots: *C₁v̀C > C₁v́CC₁v̀C (*Cv̀y > Cv̀yCv́ỳ), >
     C₁v́C₁v́Cv̀, C₁v́C₁v́Cv́; *Cv̀CVN > Cv̀Cv̀NCv́Cv̀N.

Gaam

1. in high-tone stems:
  a. *Cv́ɫ + Vm > Cv́(ɫ)Vm;
  b. some Cv́g + Vn > Cv̀v̀n-.
2. in mid-tone stems:
  a. *Cv̄ɫ + Vm > Cv́(ɫ)Vm;
  b. *Cv̄ + n > Cv́n;
  c. *Cv̄C + -a > Cv̀Cá.
3. in low-tone stems:
  a. *Cv̀(Cv̀) + -j > Cv́Cv́j; *Cv̀ + i > Cv̄ì; *Cv̀g + -i- > Cv̄i-;
  b. *Cv̀(gV)N > Cv̄N;
  c. *Cày + t + Vl > Céédv́l.

Bertha

1. in mid-tone stems: Cv̄C + Vn > Cv́CVn.
2. Cv́l- + *-ah > Cv̀Cà(').

Ik

1. in high-tone stems:
   a. *Cv́C + Vn > CVCv́n;
   b. *Cv́C + Vh, -i > *Cv̀Cv́h/í;
   c. *(C)v́C + Vr > *(C)v̀Cv́r; + VC$_3$, C$_3$ = [-voice], > (C)v̀Cv̀C$_3$;
   d. *a- + *Cv́C > àCv̀C;
   e. some *k- + wv́C > kwv̀r;
   f. *Cv́ + w > Cv̀w.
2. in mid-tone stems:
   a. *Cv̄C + Vr/Vd > CVCv̄r/v̄d; + VsVt > CVCVsv̄t;
   b. *Cv̄C + Vh > *Cv̀Cv́h.
3. in low-tone stems:
   a. *a- + *Cv̀C > aCv́C (?);
   b. *Cv̀C + Vh > Cv́Cv́.

THE SUBCLASSIFICATION OF NILO-SAHARAN

Subclassificatory schemes

The Nilo-Saharan family has relatively complex internal relationships. Attempts at subclassification of its languages began with Greenberg's (1963) initial formulation of the family. His breakdown of the family had six divisions:

1. Koman
2. Saharan ("Central Saharan")
3. Songay
4. For ("Fur")
5. Maban
6. Chari-Nile

To the last of these, Chari-Nile, were attributed four sub-branches:

a. Central Sudanic
b. Kunama
c. Bertha
d. Eastern Sudanic

Eastern Sudanic, in turn, was composed of ten subgroups, treated as if coordinate—Nubian, Tama, Nara ("Barea"), Temein, Nyimang, Gaam ("Ingessana" or "Tabi"), Daju, Surmic, Nilotic, and Rub ("Nyangiyan").

Bender long ago drew attention to Chari-Nile's weakness as a putative genetic division of th e family and has recently offered an alternative classification (Bender 1989a). His layout has five "peripheral" units of uncertain interrelationship—(1) Songay; (2) Saharan and Rub; (3) Maban and For; (4) Bertha; and (5) Kunama—along with a "Core" Nilo-Saharan comprising Eastern Sudanic, Central Sudanic, and Koman. His Eastern Sudanic divides into two sub-branches, one consisting of Nubian, Taman, Nara, and Nyimang, and the other of Nilotic, Surmic, Temein, and Jebel. He also includes Kadugli-Krongo, a group of doubtful connection to the Nilo-Saharan family at all (Ehret 1995), in this core set.

Methodological issues

But such subclassifications stand on doubly faulty foundations. First, they depend on data as yet unsupported by the establishment of systematic sound correspondences and an overall phonological reconstruction of Nilo-Saharan. They thus rest on comparisons that are sometimes valid and sometimes not. Secondly, they tend to depend on one kind of criterion, the presence versus the non-presence of an item, to identify innovation. The first is a problem of Nilo-Saharan studies that the preceding chapters have sought to remedy. The second is a much more general problem, a major hiatus in theory among historical linguists everywhere and not just among Nilo-Saharanists.

The single substantive basis for the subgrouping of languages is the identification in them of shared innovations that are unlikely to have been borrowed from one to the other. If these innovations have not been spread by borrowing, then their mutual occurrence in the languages in question normally can be explained only by their earlier occurrence in the common ancestral language, the common mother or "proto"-language, from which those languages descend. Individually shared innovations sometimes can be laid to separate parallel change in the languages, but such instances will be revealed by their conflicting distributions vis-a-vis the more general innovation patterns. (The one area of language evolution in which extensive parallel but separate change can sometimes appear is phonology, a topic to be discussed subsequently in this chapter.) This principle is generally established and widely understood, even among non-historical linguists.

But the chief practical consequence of this principle is rarely recognized or, if recognized, tends to be worked around rather than confronted and directly dealt with. To wit, a linguistic item or usage—a stem or affix morpheme, a phoneme or allophone, or a syntactical or morphological rule—can be identified as an innovation only if we can give probable identification to the item or usage it displaced or supplemented, that is, to the item or usage it was an innovation in place of or supplementary to. The non-presence of an item or usage in a language is not negative evidence; it is not evidence one way or the other. There are two possible reasons for an element to be lacking in a language: (1) it may never have been present at any time in the language's ancestry, or (2) it may once have been in the language but have been dropped from use at some point in the evolution of that language. The presence of an element in two related languages and its lack in a third thus does not by itself choose between the two possibilities. Alone, it tells us nothing whatsoever about the subgrouping of the three.

Linguists try to get around this problem by accumulating sets of cases involving the presence versus non-presence in languages of linguistic items and usages, drawing isogloss maps of presence-versus-non-presence distributions, and so forth. This is nothing more than a counting up of shared retentions. The retentions may include shared innovations, but such innovations are countable because they are present or elicitable now or in earlier written forms from a language. Their countability has no necessary connection to how or when they originally came into use in their languages. If similar amounts of overall change have taken place, as is typical in the limited portion of a language called core or basic vocabulary, then the results of counting will be roughly in line with genetic linguistic reality. But everywhere else in a language, the amounts of change that can take place over any given period of time can vary immensely. The counting of shared isoglosses might just as well reflect the relative conservatism, or its opposite, in the languages being compared.

Middle English is the outstanding well-known example of this fact. By the sixteenth century English had lost most of its distinctively Germanic and Indo-European morphology and greatly reshaped its vocabulary through word-borrowing. Its count of items other than vocabulary uniquely shared with other Germanic languages is relatively quite small. Nevertheless, despite the lesson of English, efforts at Indo-European subclassification still mostly fail to confront this problem adequately, and scholarly arguments still too often are based on counting and mapping of what, for all we are told, may well be just patterns of random shared retention. We can hardly blame Nilo-Saharanists for doing the same when they have previously lacked even the backup of a phonological reconstruction.

The failure to develop methods for distinguishing innovations and probable innovations from shared features that cannot be so identified is a fundamental weakness of historical-comparative theory that we need not continue to tolerate. (Why the problem has not been enunciated more clearly and confronted systematically is also rather difficult to understand, but need not divert us here.) Three approaches to this problem show promise: (1) ordered sound-shift histories (as in Ehret 1980); (2) lexical replacement histories in basic vocabulary (Ehret and Ali 1985; also Ehret and Kinsman 1981); and (3) pan-familial semantic histories of reconstructed roots.

The last mentioned approach will be tackled first because it provides an especially strong, internally consistent and mutually confirmatory subclassification of Nilo-Saharan. The second method, of lexical replacement histories, was the basis of an earlier provisional subclassification of the family (Ehret 1989). It will be taken up again and

presented in a revised and expanded form later in this chapter, while the classificatory evidence of sound change histories will be dealt with last. In Chapters 5-8, further comfirmatory evidence for this subclassification, drawing on morphemic innovations, will be adduced from the corpus of reconstructed affixal morphemes (presented in Chapters 5-7) and from the pronouns (their history is reconstructed in Chapter 8).

Preliminary considerations in subclassification

The issues in Nilo-Saharan subclassification concern the deeper levels of relationship. The family falls into a number of clear, often long-established and long-accepted, narrow genetic subgroups:

1. Koman (Bender's "Komuz" group, including Gumuz)
2. Central Sudanic;
3. Kunama (with Ilit);
4. Saharan;
5. Songay (single language);
6. For (single language);
7. Maban;
8. Rub
9. Tama-Nubian (after Thelwall 1982, Ehret 1983a);
10. Nara (single language);
11. Jebel (Gaam and its related languages);
12. Bertha (single language);
13. Nyimang (with Dinik);
14. Temein (with Jirru);
15. Daju;
16. Surmic; and
17. Nilotic.

Another individual language, Shabo (after Tefera and Unseth 1989), and one language group, Kadugli-Krongo, attributed by Greenberg to the Congo-Kordofanian family, have also been suggested recently as possible members of Nilo-Saharan (Schadeberg 1981; Bender in several publications). But neither, it can be argued, belongs in the family (Ehret 1995), although both may possibly be related at some deeper remove to Nilo-Saharan as a whole.

The Kir-Abbaian and Astaboran language groups

The last seven of the subgroups listed above (11-17) can confidently be joined together in one group called Kir-Abbaian, named after the Kir (White Nile) and Abbai (Blue Nile) Rivers. Languages of five or the seven Kir-Abbaian subgroups are spoken today between or near those rivers, and the lands between the two probably formed the original proto-Kir-Abbaian speech area. (Ehret 1983a applies the inappropriate name "Eastern Sudanic" to this group.)

The subclassification of Kir-Abbaian has previously been established elsewhere (Ehret 1983a, 1989) and is not overtly argued in this chapter. But a variety of new supporting evidence for it, drawn from semantic histories, appears in the notes to particular entries in the Etymological Dictionary of Nilo-Saharan, and still further corroboration appears both in the evidence of lexical replacement histories (below, this chapter) and in the pronoun histories developed in Chapter 8. Examples of the shared Kir-Abbaian innovations, both semantic and morphological and in one case phonological, that appear in the Etymological Dictionary number fifty (roots 69, 70, 99, 133, 155, 164, 199, 203, 268, 293, 294, 323, 373, 403, 484, 486, 509, 515, 534, 582, 592, 618, 625, 746, 862, 967, 1000, 1047, 1094, 1162, 1191, 1219, 1316, 1345, 1351, 1367, 1369, 1426, 1428, 1437, 1478, 1519, 1526, 1537, 1550, 1554, 1555, 1597, and 1598).

A variety of similar evidence substantiates subgroupings within Kir-Abbaian. A significant, though not large, body of shared innovations, some of them very strong, supporting its less well known Jebel branch are noted in the Etymological Dictionary (roots 119, 313, 812, 942, 988, 1008, 1105, 1191, 1268, and 1369). One especially arresting morphological innovation, a stem-internal vowel lengthening in the formation of some plurals, can be found in both Gaam and Bertha (see roots 45, 638, and 746 among others).

For the Kir branch of Kir-Abbaian, more than thirty innovations supporting the group as a whole can be cited in the Etymological Dictionary (in roots 2, 26, 31, 105, 113, 133, 145, 150, 156, 264, 303, 322, 378, 433, 535, 580, 622, 671, 672, 762, 786, 860, 907, 1088, 1089, 1264, 1369, 1372, 1453, 1460, 1487, 1508, 1533, 1563, and 1583). The proposed Nuba-Mountains subgroup of Kir, extremely poorly known as yet, is marked by just one apparent common semantic innovation in the Etymological Dictionary (root 66). One shared semantic development connects Daju and Surmic of Kir to the exclusion of Nilotic (see root 97), while one other such item seems to link Nuba Mountains, Daju, and Surmic as against Nilotic (root 891). A morphological change in one root also appears in its Surmic and Nuba-

Mountains occurrences but not in its Nilotic reflex (root 1287). But the balance of the evidence of semantic innovation supports the postulated Surma-Nilotic subgroup (roots 14, 36, 71, 387, 520, 593, 782, and 1434). One semantic innovation (root 686) seems to link Gaam to Nubian rather than to Kir; but since there are demonstrable loanwords in Gaam of probable Nubian origin, presumably dating to the period of the medieval Alodia kingdom, this shared meaning shift may well be attributable to the same broad set of influences.

Table 4.1. Subclassification of Kir-Abbaian

Kir-Abbaian
I. Jebel
  A. West Jebel
    1. Gaam
    2. Central Jebel (Aka, Molo, and Kelo)
  B. Bertha
II. Kir
  A. Nuba-Mountains
    1. Temein, Jirru
    2. Nyimang, Dinik
  B. Daju (see Thelwall 1981 and Ehret 1983a for alternative subgroupings of the Daju languages)
  C. Surma-Nilotic
    1. Surmic (see Ehret 1983a and Fleming 1983 for subclassification of Surmic languages)
    2. Nilotic
      a. Western Nilotic
        i. Jii
          (1) Jyang-Naath
            (a) Jyang [Dinka], Atuot
            (b) Naath [Nuer]
          (2) Luo
            (a) Ocolo [Shilluk]
            (b) Acholi, Alur, Luo, Anyuak, Padhola, Jur, etc.
        ii. Burun
          (1) Burun
          (2) Mabaan, Jumjum
      b. Eastern Nilotic (after Ehret et al. 1974)
        i. Bari (Bari, Mondari , etc.)
        ii. Tung'a ('Teso-Maasaian')
          (1) Ateker (Teso, Turkana, Karimojong,
Jie, Lango, etc.)
          (2) Lotuko-Maa
            (a) Lotuko (plus Lopit, etc.)
            (b) Maa-Ongamo (Maasai, etc.; Ongamo)
      c. Southern Nilotic (after Ehret 1971)
        i. Tato
          (1) Datoga
          (2) Omotik
        ii. Kalenjin (Nandi, Pakot, Kony, Akie, etc.; for a detailed overall subclassification see Distefano 1985)

Bender demurs on Bertha, proposing that extensive borrowing accounts for its links to the Gaam group, and on Nyimang, suggesting that it might be closer to Western Astaboran (for the classification followed here, however, see Table 4.2 below). The phonological reconstruction of Nilo-Saharan makes it clear that there are indeed loanwords from the Western Jebel subgroup in Bertha (e.g., roots 680 and 696, among others; Bender (1989b: 18) has the principal direction of influence backwards, from Bertha to Western Jebel). But there remains a core of lexical and other innovations shared by the Gaam languages and Bertha that cannot be explained away as loans. From the little evidence that is available for Nyimang, it similarly seems probable that its special resemblances to Nubian are due to borrowing rather than closer relationship (e.g., root 534 in the Etymological Dictionary).

The Tama-Nubian and Nara languages together form another wider subgroup of Nilo-Saharan (Ehret 1983a; also Thompson 1976; and more recently M. L. Bender, personal communication, support this classification). This subgroup has been called Astaboran (Ehret 1989), after the ancient name of the Atbara River which lies between the former Nubian territories of the Sudan and the Nara speech area at the northeastern edge of the Ethiopian highlands. Nubian and Tama form the Western branch of Astaboran, while Nara is the lone Eastern Astaboran tongue. In the Etymological Dictionary, arguments for shared innovations supporting the validity of Astaboran appear in the notes to at least three roots (1008, 1186, and 1582), and another nine roots provide support for the Western subgroup of Astaboran (roots 453, 538, 749, 762, 1234, 1290, 1374, 1425, and 1429). Again, as for Kir-Abbaian, further evidence for these subgroupings appears in the lexical replacement histories (see Table 4.3 below).

There thus remain, for the purposes of the arguments to be presented here, ten distinct genetic divisions of the family whose interrela-

tionships are to be explored: Koman (including Gumuz), Central Sudanic, Kunama, Saharan, Songay, For, Maban, Rub, Astaboran, and Kir-Abbaian.

Historical-comparative inference from semantic innovation

The approach of pan-familial semantic histories requires the identification of a specifiable set of Nilo-Saharan roots. The members of this set have the following specification: the reflexes of such a root, as they appear in languages of two or more genetic subgroups, show a shared semantic shift, or evince a common earlier, underlying meaning shift, not found in or inferrable for the root as it appears in one or more of the other genetic subgroups of the family. Possession of the root in a form bearing the particular shared semantic innovation is a datum for the languages' having derived from a common line of descent within the family—from a common intermediate mother language not belonging to the line(s) of descent of those languages that retain the root but without the relevant semantic innovation. Since a single case of such a shared meaning shift might possibly reflect separate parallel innovations, a body of such cases, repeatedly consistent in their mutual implications, is needed to sustain the argument. The prerequisite in the identification of the relevant set of data is a Nilo-Saharan phonological reconstruction, as provided in Chapters 2 and 3, which in combination with the Etymological Dictionary of Nilo-Saharan verifies the cognation of the lexical materials to be analyzed.

The nature of the linguistic historical situation, i.e., the great time depth and long history of internal diversification of the Nilo-Saharan family, means that many quite ancient innovations will have widely dropped out of use in particular languages despite having once been present in earlier ancestral forms of those languages. In addition, the poor collection of data for many of the modern-day languages ensures that ancient innovations still extant will often not have been recorded as yet.

But these problems do not in any wise derail the enterprise. Quite the contrary—they only cut down a potentially enormous body of relevant semantic data to a more manageable size. The diagnostic datum for the method is the presence of the innovation, not its lack. What is essential is the consistency of the relational indications of those data that *do* appear in the language. The lack of a particular innovation in the available materials for the language means simply that in that instance the language provides no evidence one way or another on its relationships. Perhaps other languages of the same genetic subgrouping

will show the missing innovation in their data; perhaps they will not. In any case, a sufficient number of languages, scattered all across the family, have been well enough recorded that a large body of data on semantic innovation patterns can be developed.

The basic assumptions that support the exercise of discovering semantic innovation are three:

1. A concrete meaning is historically prior to an abstract, metaphorical, symbolic, euphemistic, descriptive, or attributive meaning for a root.
2. A non-technical meaning for a root is prior to a culturally, economically, or technologically specific meaning.
3. A general or broad meaning for a root is usually prior to a specialized or more narrowly focussed meaning.

The first two are nearly axiomatic and rarely violated; the last of the three is more a guideline than a dictum. Because general senses can derive from meanings of originally narrower scope, the emphasis in applying this last criterion is on whether a logical unidirectionality of the link between the two meanings can be argued. A verb "to insert, put into," for example, can quite easily be understood to have shifted in meaning to the very narrow sense of solely "to insert into a purse" (as in the Kunama entry in root 889); but an opposite direction of shift, from such a specialized meaning to general insertion of any kind, would be highly improbable.

Meaning shift in a morphologically unmodified root is the best evidence for subgrouping. If a semantic innovation is brought about by a morphological addition to the root, then essentially a new root has come into being. Where the distributions of the modified root and its unmodified form are mutually exclusive, it can be argued that the modified shape more likely than not displaced the simple root in the mother language of those languages that share it. But when a root has widely persisted in the same languages in both the simpler and the morphologically modified shapes, the historical placement of the innovation becomes unclear. A language lacking the extended shape cannot be said never to have had it; there is no way of being sure that the form might not have been lost after having once been present in its vocabulary. For that reason, the evidence relied upon in the next several sections of this chapter consists solely of shared meaning shifts in roots that are morphologically unmodified or in which the morphological innovations have no visible derivational implications.

Arguing from pan-familial semantic histories

The course of argument taken in applying the method of pan-familial semantic histories moves backward in time. It defines each successively deeper branching of a language family by identifying and grouping the roots that share in particular semantic innovations when those roots do occur in the languages of that branching *and* that fail to show evidence of those innovations when they occur in languages outside that branching.

The method uses transitive argumentation to build its cases. What is common to the set of diagnostic roots is the subgroup of languages in which the semantically innovated reflexes are attested. What varies are the distributions of the non-innovatory reflexes in languages outside that subgroup. The transitivity property then allows these various cross-cutting and overlapping distributions to be grouped together in a mutually supportive body of evidence identifying the non-members of the branching at issue.

The method does not necessarily identify the earliest period to which any particular semantic innovation can be traced. Let us consider a hypothetical example. For example, we find a PNS root that reveals a particular semantic innovation in its occurrences in languages belonging to the three subgroups of the Eastern Sahelian branching. We locate instances of this root lacking the innovation only in the Koman and Central Sudanic language groups. Such a distribution would form part of the wider body of evidence for excluding Koman and Central Sudanic from Eastern Sahelian, but it does not tell us that the semantic innovation in question took place at the proto-Eastern Sahelian period. Why? In the subclassification developed in this chapter, Koman and Central Sudanic diverged at the earliest two stages in Nilo-Saharan history, and several successively more recent periods of divergence took place leading down to the time finally of the proto-Eastern Sahelian breakup. One does not know therefore in this instance whether the semantic innovation in question occurred at the proto-Eastern Sahelian period or took place in one or another of the intervening periods since Koman and Central Sudanic became distinct branches.

This point has direct relevance for the reader's interpretation of a certain kind of information in the Etymological Dictionary. The innovations supporting the subclassification of Nilo-Saharan are described in notes appended to the cognate tablings, and the descriptions are normally prefaced with the words "Eastern Sahelian semantic innovation," "Saharo-Sahelian semantic innovation," and the like. This terminology means by itself only that the root data preceding the note form one of the packets of evidence supporting the particular

branch—Eastern Sahelian, Saharo-Sahelian, and so forth. It tells us that the shared semantic innovation in question is known today in languages of that branching but not outside of it. Oftentimes the innovation can be shown to be truly an innovation of the particular branching in which it is found, simply because the languages that diverged at the immediately preceding era still maintain the root without that innovation. But in other cases, the distribution of the meaning shift may be like that seen in the hypothetical Eastern Sahelian example described just above. In such cases, it will be uncertain whether the innovation belongs only to that branch or came into being during a preceding period.

Eastern Sahelian

The least inclusive grouping of the ten distinct genetic divisions of Nilo-Saharan for which the evidence of semantic innovation makes a compelling case is composed of Astaboran, Kir-Abbaian, and Rub as its three branches. To this grouping is given the name Eastern Sahelian. Its composition closely parallels that of Greenberg's original Eastern Sudanic, but the new name better captures its fit in the subclassificatory naming system used here.

Almost seventy shared semantic innovations showing that Rub, Kir-Abbaian, and Astaboran form a genetic group which excludes all the rest of the family can be extracted from the Etymological Dictionary. The exclusion of subgroups is of course indicated by their possession of a particular root but without its having the semantic innovation evinced in its Eastern Sahelian reflexes.

In at least fourteen instances, diagnostic meaning shifts have been preserved in words found in languages of all three Eastern Sahelian branches. These cases variously exclude from Eastern Sahelian the For, Maban, Songay, and Saharan groups (root 1392); For, Songay, Saharan, and Koman (root 310); For and Central Sudanic (root 1311); Saharan, Kunama, Central Sudanic, and Koman (root 576); Songay, Saharan, and Koman (root 1065); Songay and Kunama (root 17); Songay and Central Sudanic (roots 208 and 612); Songay and Saharan (root 538); For and Kunama (root 813); Songay and Koman (root 437); Saharan and Kunama (root 430); Kunama (root 1156); and Saharan (root 1016).

In nearly sixty other instances, a semantic innovation is known in languages of two of the branches but not yet from the third branch. That is, the innovation shows up in the available evidence in Rub and

Kir-Abbaian, or in Astaboran and Kir-Abbaian, or in Rub and Astaboran languages.

Amongst these are examples grouping Astaboran and Kir-Abbaian as against Maban, Songay, Kunama, and Koman (root 1001); Maban, Kunama, and Koman (root 1279); Maban, For, Saharan, and Kunama (root 517); Songay, Saharan, and Central Sudanic (roots 159 and 486); For, Saharan, Kunama, and Koman (root 1449); Saharan, Central Sudanic, and Koman (roots 268, 790, and 1597); Songay, Saharan, and Koman (root 1064); Songay and Kunama (root 601); Songay and Koman (root 593); For and Saharan (1237); Saharan and Kunama (roots 676, 877, and 938); For and Kunama (roots 1446 and 1579); Maban and Koman (root 1213); Kunama and Koman (root 425); For and Central Sudanic (root 1532); For and Koman (root 702); For alone (root 1313); Saharan and Central Sudanic (roots 52, 313, and 1291); Saharan and Koman (root 1083); Songay and Central Sudanic (root 131); Central Sudanic and Kunama (root 828); Central Sudanic and Koman (root 723); Songay (roots 980 and 1017); Saharan (root 243); Kunama (roots 118 and 1125); Central Sudanic (root 263); and Koman (roots 137 and 215).

Rub and Kir-Abbaian combine against a similarly cross-cutting array of Nilo-Saharan groups—versus Songay, For, Saharan, Central Sudanic, and Koman (root 1264); Maban, Saharan, and Koman (root 282); Maban, Songay, and Koman (root 94); For, Songay, and Koman (root 565); Saharan, Kunama, and Central Sudanic (root 218); Songay and Kunama (roots 105, 840, and 896); Songay and Central Sudanic (root 612); Songay (root 314); Saharan and Kunama (roots 929 and 1251); Saharan and Central Sudanic (root 254); Saharan (root 1524); Kunama and Central Sudanic (root 915); Kunama and Koman (root 49); and Central Sudanic (root 216).

Finally, the Astaboran and Rub groups stand together in three more cases, one excluding Saharan (root 952), another distinguishing them from For, Songay, Saharan, Central Sudanic, and Koman (root 1004), and a third dividing them from For, Songay, and Kunama (root 1510).

The three groups, Rub, Astaboran, and Kir-Abbaian, must be considered for now to be three mutually distinct, coordinate branches of Eastern Sahelian. Semantic innovations in three roots might seem to exclude Astaboran from a subgrouping of Kir-Abbaian and Rub (roots 203, 1465, and 1525). But contrasting innovations in four other cognate sets countermand this solution—two linking Rub and Astaboran against Kir-Abbaian (roots 581 and 1411) and the other two matching Kir-Abbaian and Astaboran against Rub (roots 834 and 1557).

The size of the contribution of each Eastern Sahelian branch to the evidence is directly related to the complexity of each. Rub contri-

butions are fewest because Rub has fewer languages than Astaboran, with just three relatively closely related tongues in which the evidence has been preserved, and many fewer than the diverse Kir-Abbaian branch. Having by far the most extant languages, Kir-Abbaian, as could be expected, provides evidence in all but four of the cases cited.

Overall, Songay is excluded from Eastern Sahelian by twenty-six data sets, Saharan by thirty-three, Kunama by twenty-six, Central Sudanic by twenty-three, and Koman by twenty-four. For, a solitary language not nearly as well recorded as the other single-language subgroups, Songay and Kunama, nevertheless is represented by fifteen examples. The exclusion from Eastern Sahelian of Maban, a subgroup of just four or five languages all of which are poorly known, is attested weakly, though consistently, by seven sets of data.

For the details of these data the reader should refer to the particular roots in the Etymological Dictionary. The kind of semantic patterns encountered there can be illustrated by a couple of instances specifically supporting Eastern Sahelian:

> Root 268. *no: 'to not move'
>   Koman: Uduk 'to forbid, hinder, refuse, prevent'
>   PCS 'to not move'
>   Saharan: Kanuri 'to die'
>   Eastern Sahelian:
>   Astaboran: Nara 'to sleep'
>   Kir-Abbaian: Gaam 'sleep';
>   Nilotic: Ocolo 'to be drowsy, sleep';
>   Kalenjin 'to fall asleep'

> Root 310. *ɗoŋkʰw 'to stay in place, not move'
>   Koman: Uduk 'lazy'
>   Saharan: Kanuri 'to remain, live'
>   Songay 'to remain, be left apart'
>   For 'idle'
>   Eastern Sahelian:
>   Astaboran: Tama 'to sit'
>   Kir-Abbaian: Surmic: Majang 'to sit'
>   Rub: Ik 'to sit'

The first of these two examples (root 268) shows a shared specialization of the original meaning to a particular kind of non-movement, *sleeping*, not found or implied in the other reflexes. The second example (root 310) similarly reveals in its Eastern Sahelian outcomes a par-

ticular specialization of the meaning of the root, to *sitting*, not seen out-side the three Eastern Sahelian branches.

Against the nearly seventy cases for Eastern Sahelian, just four potential counter-examples have been identified in the Etymological Dictionary (roots 87, 564, 929, and 1409). Even of those, two are stongly suspect, however, of having resulted from borrowing or areal influence, because in both instances the languages that show the inno-vations have long been spoken in adjoining territories. One of the two, *mbod (root 87), originally probably "chest," attests the meaning "breast" directly in the Taman subgroup of Astaboran and indirectly in For, where it refers to "milk," while another root *paŋ "to call" (564) uniquely takes the meaning "to sing" in Uduk of Koman and in nearby Gaam of Kir-Abbaian.

Sahelian

The same kind of semantic evidence equally strongly shows Eastern Sahelian, at a deeper remove, to belong to a still wider genetic grouping of Nilo-Saharan languages composed, in addition to it, of For, Songay, and Maban. The general geographical distribution of this grouping, except for the Nilotic and Surmic languages, across the modern Sahel belt dictates the name *Sahelian* for it. Comprising East-ern Sahelian, Maban, For, and Songay, the Sahelian connection is at-tested by semantic innovations retained in a variety of combinations of languages belonging to two or more of these four subgroups.

Just two innovations are as yet attested from languages of all four of the Sahelian branchings, one certainly and the other probably. The first rules out Kunama and Saharan from the Sahelian group (root 1371); the second, if valid, excludes Kunama (root 1400).

But sixteen other semantic innovations have been identified from languages belonging to at least three of the four divisions. Three of these link together For, Maban, and Eastern Sahelian branches, ex-cluding from Sahelian the Saharan, Kunama, Central Sudanic, and Koman groups (root 1179), the Saharan and Central Sudanic groups (root 1129), and Kunama alone (root 1587). Six more innovations (root 1129), and Kunama alone (root 1587). Six more innovations conjoin Songay, For, and Eastern Sahelian to the exclusion, variously, of Saharan, Kunama, and Koman (root 600), Saharan and Kunama (root 1383), Central Sudanic and Koman (root 1552), Kunama and Koman (root 73), Saharan (root 979), and Koman (root 565). The re-maining seven group together Songay, Maban, and Eastern Sahelian and exclude Kunama, Central Sudanic, and Koman (root 1410), Cen-tral Sudanic and Koman (root 1270), Saharan and Central Sudanic

(root 486), Saharan alone (root 389), and Central Sudanic alone (roots 116, 283, and 1168).

A still larger number of semantic innovations diagnostic of Sahe-lian have been identified in languages belonging to different pairings of the four subgroups. Thirty-four shared innovations known from East-ern Sahelian and Songay variously rule Saharan out of their grouping (roots 369, 611, 1301, and 1477) as well as Saharan and Central Su-danic (roots 99, 124, 324, and 421); Saharan and Koman (roots 664 and 1034); Saharan and Kunama (root 1485); Saharan, Kunama, and Koman (roots 80 and 1381); Saharan, Kunama, Central Sudanic, and Koman (root 719); Kunama (roots 17, 109, 1047, and 1235); Ku-nama, Central Sudanic, and Koman (root 712); Kunama and Central Sudanic (root 192); Kunama and Koman (roots 353, 784, 1050, 1080, 1086, and 1194); Central Sudanic (roots 648, 1433, and 1515); Cen-tral Sudanic and Koman (roots 157, 757, and 1282); and Koman (roots 831 and 967).

Other innovations, attested in For and Eastern Sahelian, confirm these exclusions. Five rule out Saharan and Kunama from Sahelian (roots 627, 751, 1462, and 1485). Another eighteen exclude Saharan, Kunama, and Central Sudanic (roots 663 and 802); Saharan, Kunama, and Koman (root 596); Saharan, Central Sudanic, and Koman (roots 165, 325, 669, and 1268); Saharan and Central Sudanic (root 257); Kunama (roots 1579 and 1587); Kunama, Central Sudanic, and Ko-man (roots 256, 285, and 904); Kunama and Central Sudanic (root 1603); Central Sudanic and Koman (roots 829 and 1418); and Koman (roots 433 and 735). Songay and For share a further innovation that rules out Saharan, Kunama, and Koman from Sahelian (root 1570).

The Maban group, though much less well recorded than the oth-ers, nonetheless adds a few more semantic innovations that it shares with Eastern Sahelian. These variously exclude Saharan, Kunama, and Koman (root 1245), Saharan (root 692), Central Sudanic (root 378), Kunama (roots 609 and possibly 1195), Koman (root 1348), and Kunama and Koman (roots 1013 and 1221) from Sahelian.

Numbering more than eighty, the diagnostic semantic innova-tions form interlocking and mutually consistent distribution patterns, variously combining the four Sahelian subgroups Eastern Sahelian, Maban, For, and Songay, and repeatedly excluding—by reason of *positive* evidence for the *non-existence* of the relevant semantic inno-vations—Saharan, Kunama, Central Sudanic, and Koman from those combinations. Thirty-seven of the examples exclude Saharan from membership in Sahelian, forty-three bar Kunama, thirty-four rule out Central Sudanic, and forty-one separate out Koman. Against the more than eighty positive indications of the validity of Sahelian, just four

potentially counter-indicative sets of cognates have been noted (roots 316, 521, 759, and 1259).

The cases for For, Songay, and Eastern Sahelian as subgroups of a Sahelian division of the family are especially strong and consistent ones. For matches up in differing combinations with Songay, Maban, and Eastern Sahelian that exclude Saharan in nineteen instances, Kunama in twenty-one, Central Sudanic in fifteen, and Koman in nineteen; while Songay links up variously with Maban, For, and Eastern Sahelian in innovations that exclude Saharan eighteen times, Kunama twenty-two times, Central Sudanic seventeen times, and Koman twenty-one times. Eastern Sahelian, with its large number of languages, is joined variously to the other three by still more examples: in thirty-three cases excluding Saharan, in forty excluding Kunama, in thirty-two excluding Central Sudanic, and in thirty-nine excluding Koman.

The one weakly supported subgroup of Sahelian is Maban. So poorly known are the languages of the group that the sets of evidence for Maban's general membership in Sahelian are significantly fewer than those even of the two single-language branches, For and Songay. On the other hand, the evidence that is available is wholly consistent in its relational indications. In four cases Maban joins variously with others of the four Sahelian groups in semantic innovations that exclude Saharan; in nine cases each in innovations that rule out Kunama or Central Sudanic; and in eight that exclude Koman.

Again the reader should turn to the Etymological Dictionary for details, but two of the examples are worthy of particular citation:

Root 1410. *wɛy 'to die'
  proto-Koman 'to die'
  PCS 'to die'
  Kunama 'to be quiet, disappear'
  Songay 'to kill'
  Maban: Maba 'to kill'
  Eastern Sahelian: Rub: Ik 'to beat'

Root 1492. *yɛh 'to lie (down)'
  PCS 'to lie, be still, stay in place'
  Kunama 'to go down, descend'
  Saharan: Zaghawa 'to lie'
  Songay 'ancestor'
  Maban: Maba 'to die'
  Eastern Sahelian:
        Astaboran: Taman 'to die'
        Kir-Abbaian: Eastern Nilotic 'to die'

The first of these roots (root 1410) reveals a shift in the Sahelian attestations from an intransitive to a transitive meaning, i.e., from "to die" to "to kill." The Kunama reflex has undergone a meaning shift from the original application to dying but has retained an intransitive sense, showing its derivation from that original intransitive meaning. The Rub reflex, in contrast, bears a transitive meaning in keeping with its derivation from the Sahelian transitive "to kill" attested elsewhere in the group (note: the semantic linking of "beat/hit" and "kill" is a common one in Africa). The second root (1492) situates a straightforward euphemistic shift from "to lie down" to "to die" in the common ancestor language of Sahelian, or at least in the common ancestor of the three subgroups specifically attesting that shift. (See discussion under root 1492 of the apparently parallel meaning shift in this root in the Bodelean subgroup of the Saharan group.)

Whether any further historical hierarchy of relationships among the four branches exists cannot be finally determined from the evidence of semantic innovation presently available. In three instances, however, Maban and Songay partake of shared semantic innovations that are not present in Eastern Sahelian forms of the roots concerned (roots 57, 1202, and 1518), supporting the hypothesis that Maban and Songay form a distinct subgroup within Sahelian. One exceptionally strong case indicates further that Maban belongs with Eastern Sahelian in a subgroup of Sahelian that does not include For: the Maban languages share with Eastern Sahelian a word for "five" that retains its surely prior, concrete connotation "finger" in For (root 814). Still another innovation groups Eastern Sahelian and Maban languages as against For and Kunama (root 1360), while one less striking cognate set also shows a semantic innovation similarly linking Maban and Eastern Sahelian as against For (root 514). In keeping with the hypothesized subgrouping of Maban with Songay, two cases link Songay with Eastern Sahelian to the exclusion of For (roots 71 and 990). One counterindicative innovation pattern has been noted: it connects Maban with Eastern Sahelian while excluding Songay (root 652).

Overall, this evidence makes an arresting, although not yet compelling, argument for a bifurcated Sahelian group, consisting of For as one branch and the remaining Sahelian languages (outline numbering taken from Table 4.2 below):

  i. For
  ii. Trans-Sahel
        (1) Western Sahelian
              (a) Songay; (b) Maban
        (2) Eastern Sahelian

With the one exception, the evidence is internally consistent. But before this alignment can be taken as more than an arresting hypothesis, it needs augmenting with the kind of data that a better knowledge of the Maban languages will someday provide.

Saharo-Sahelian

The next wider grouping of Nilo-Saharan languages demonstrable from this kind of evidence combines Sahelian with the Saharan language group and can be called Saharo-Sahelian. The testimony of semantic innovation is again strong and consistent in tying the two as co-ordinate branches of a Saharo-Sahelian division exclusive of the remaining three major subgroups of the family, Kunama, Central Sudanic, and Koman.

Six shared semantic innovations in particular roots connect the Saharan group with different combinations of the Sahelian subgroups, while at the same time excluding those remaining three divisions, which in their reflexes of the same roots do not show the diagnostic innovations. Four cases set Saharo-Sahelian off from all three: roots 358, 610, 1488, and 1601 each contain attestations in Saharan and the Eastern Sahelian branch of Sahelian, and one includes a For reflex as well. The fifth set, root 719, has reflexes in Songay, Saharan, and Eastern Sudanic, while the sixth, 1297, is attested from Saharan and Songay.

A further twenty-five examples exclude different pairings of Kunama, Central Sudanic, and Koman from Saharo-Sahelian. Shared semantic innovations in ten roots join Saharan and Sahelian as against both Central Sudanic and Kunama. Six of these have identifiable attestations in Saharan and in the Eastern Sahelian branch of Sahelian (roots 352, 415, 498, 534, 653, and 893), while an seventh innovation is evinced in Songay and Maban as well as in Eastern Sahelian and Saharan (root 199), and an eighth appears in Songay and Saharan (root 1571). A ninth is found in Maban, Saharan, and Eastern Sahelian (root 639), and a tenth in Eastern Sahelian, Songay, and Saharan (root 1267). Twelve innovation patterns rule out Koman and Kunama as members of Saharo-Sahelian—three of these attested in Saharan, Songay, and Eastern Sahelian (roots 20, 162, and 1491); one in Saharan, Songay, and For (root 1387); still another in Saharan and For (root 1157); and seven in Saharan and Eastern Sahelian (roots 104, 786, 824, 826, 921, 1093, and 1149). And three innovations exclude both Central Sudanic and Koman from the Saharo-Sahelian line of descent: two known from Saharan, Songay, For, and Eastern

Sahelian occurrences (roots 1004 and 1015), and one from Saharan and Eastern Sahelian (root 638).

Still another twenty-eight data sets rule out the membership of one or the other of Kunama, Central Sudanic, or Koman in the Saharo-Sahelian group. Four of these sets pit Kunama against Saharan and Eastern Sahelian (roots 540, 794, 903, and 1032), while one distinguishes it from Saharan, Songay, and Eastern Sahelian (root 1039). Fourteen further semantic innovations exclude Central Sudanic from the group, with one of these known from Saharan, For, Songay, and Eastern Sahelian attestations (root 1055), one from Saharan, Maban, and Eastern Sahelian (root 79); six from Saharan, Songay, and Eastern Sahelian (roots 59, 159, 292, 304, 641, and 1528); one from Saharan, Songay, and For (root 500); and five from Saharan and Eastern Sahelian (roots 97, 311, 574, 683, and 1409). Finally, nine semantic innovations separate Koman from Saharo-Sahelian. Two of these are exemplified in Saharan, Songay, and Eastern Sahelian (roots 1034 and 1064), and one in Saharan, Maban, and Eastern Sahelian (root 282); whilst seven appear in Saharan and Eastern Sahelian instances (roots 5, 199, 407, 510, 541, and 637).

Altogether thirty-four cases rule out Kunama and thirty-four exise Central Sudanic from Saharo-Sahelian, while thirty exclude Koman from Saharo-Sahelian. Against these numerous mutually supportive validations of Saharo-Sahelian, just four potentially counter-indicative examples have been noted from the Nilo-Saharan Etymological Dictionary (roots 204, 534, 615, and 1387).

An example of the semantic innovations supporting the Saharo-Sahelian group is provided by:

> Root 1267. *rip or *riɓ 'to go down, descend'
> PCS 'to go down'
> Kunama 'to settle'
> Saharan: Kanuri '(ideophone) of lying flat on the ground'
> Songay 'to lean on hands, lean on something for walking'
> Eastern Sahelian:
>> Astaboran: Nara 'to lie down'
>> Kir-Abbaian: Nilotic: Ocolo 'to lie on stomach'

The Saharo-Sahelian attestations noted in this instance—in Kanuri, Songay, Nara, and Ocolo—all share a meaning shift particularizing the root to resting oneself *on* or, in the case of Songay, *against* something.

Northern Sudanic

At the next deeper stage of relationship, Saharo-Sahelian can be joined with Kunama in a Northern Sudanic division of Nilo-Saharan. Probably because one of the two branches consists of only a single language, Kunama, from which the relevant evidence could be obtained, and also perhaps because of the increasing time span of language change involved, fewer semantic innovations indicative of the grouping—forty in all—can be identified than for Saharo-Sahelian, Sahelian, or Eastern Sahelian. But the logical consistency of the distributions of the semantic innovations and the near lack of counter-indicative data (four possible counter-examples are 492, 746, 1009, and 1176) build a case for Northern Sudanic as solidly grounded, even if not quite as extensively supported.

Nine semantic innovations exclude both Central Sudanic and Koman from the Northern Sudanic grouping. One links Kunama, Saharan, Maban, and Eastern Sahelian (1118: Koman indirectly attested in Ocolo word borrowing). Another is found in Kunama, Saharan, and the Songay and Eastern Sahelian subgroups of Sahelian (root 100). Two can be identified in Kunama and Eastern Sudanic (roots 578 and 1192), and one each from the combinations of Kunama, Songay, For, Maban, and Eastern Sahelian (root 1006), Kunama, Saharan, For, and Eastern Sahelian (root 1369), Kunama, Saharan, and Songay (root 1297), Kunama, Saharan, and Eastern Sahelian (root 1188), and Kunama and Songay (root 603).

Seventeen further cases rule against Central Sudanic membership in Northern Sudanic. Two conjoin Kunama, Saharan, Songay, and Eastern Sahelian reflexes against Central Sudanic (roots 248 and 872). Four others occur in Kunama, Saharan, and Eastern Sahelian examples (roots 499, 688, 889, and 1224). One is found in Kunama, Maban, and Eastern Sahelian (root 383), and another has been noted in Kunama, Songay, and Eastern Sahelian (root 518). Still another appears in Kunama, For, and Eastern Sahelian (root 356); two more cases are present in Kunama and Songay reflexes (roots 493 and 1504); a twelfth has Kunama and Saharan attestations (root 1214); and the remaining five occur in Kunama and Eastern Sahelian languages (roots 429, 604, 607, 1156, and 1339).

A final thirteen cases, again with a variety of patterns of occurrence across the Saharo-Sahelian group, separate Koman from Northern Sudanic. One set is known from Kunama, Saharan, Songay, and Eastern Sahelian attestations (root 705); a second from Kunama, For, Maban, and Eastern Sahelian (1463); a third from Kunama, Saharan, and Eastern Sahelian (root 284); a fourth and a fifth from Kunama, Sa-

haran, and For (roots 935/936 and 1157); and sixth and seventh cases from Kunama, Songay, and Eastern Sahelian (roots 660 and 784). Five others have reflexes in Kunama and Eastern Sahelian (roots 716, 791, 851, 852, and 859), while the thirteenth and fourteenth appear in Kunama and Songay (roots 741 and 975).

Altogether, at least twenty-three cognate sets rule against Koman and twenty-six against Central Sudanic as members of Northern Sudanic. A telling example is:

Root 1297. *laːl 'to call out (to someone)'
  Koman: Uduk 'to persuade, incite to do something'
  PCS 'to call out'
  Kunama 'to denigrate'
  Saharan: Kanuri 'to abuse, curse'
  Songay 'to curse'

The Northern Sudanic reflexes here share in a specialization of the verb meaning to abusive calling out, an innovation not present or implied in the Central Sudanic and Koman meanings. The Koman reflex does show an innovatory narrowing of the root's meaning, but in a quite different direction from that of the Kunama, Saharan, and Songay verbs.

Sudanic and Koman as primary branches of Nilo-Saharan

The smallest body of evidence—smallest because one side of the argument necessarily rests on data preserved in just one subgrouping—can be developed for the placement of the last two major subgroups, Central Sudanic and Koman. The evidence of shared semantic innovation that can be identified indicates that Central Sudanic should be joined with Northern Sudanic in a Sudanic branch of Nilo-Saharan coordinate with Koman as the second primary branch of the family.

The heart of the case rests on four very strong data sets in which Central Sudanic can be argued to share with Northern Sudanic languages in meaning shifts that are distinctly ruled out for Koman by the meanings seen in the Koman reflexes of the roots concerned. Against Koman, those four strong sets variously link together Central Sudanic with Kunama, Saharan, and Eastern Sahelian subgroups of Northern Sudanic (root 226); Central Sudanic with For and Eastern Sahelian of the Sahelian sub-sub-branch of Northern Sudanic (root 670); Central Sudanic with Songay and Eastern Sahelian of Sahelian (root 1070); and Central Sudanic with Saharan and For (root 773).

Another five probable and possible cases of semantic innovations also supporting the Sudanic branching can be cited. These combine variously Central Sudanic, Kunama, For, and Eastern Sahelian (root 904); Central Sudanic, Saharan, and Eastern Sahelian (root 410); Central Sudanic, Songay, and Eastern Sahelian (root 1052); and Central Sudanic and Eastern Sahelian (roots 41 and 739), to the positively attested exclusion of Koman. Three of these five (roots 739, 904, and 1052) are strong indicators in their own right; the other two are possible but not compelling corroborations. A tenth, indirectly inferred case, if correctly argued, links Central Sudanic, Saharan, For, and Eastern Sahelian against Koman (root 575).

Each of the first four, strong sets, however, cannot be explained away without some degree of special pleading; and, moreover, just one possible counter-example to their historical implications (root 659)—that Koman forms a primary branch of Nilo-Saharan coordinate with a Sudanic branch composed of the restion of the family—has been noted so far among the Nilo-Saharan roots.

The two primary branches of Koman, Gumuz and Southern Koman, in keeping with this solution, stand together in their semantic innovations against various combinations of the the Sudanic subgroupings. Because the available Gumuz evidence is meager, just six such cases, all drawn from the core vocabulary, can be cited. But their testimony is consistent: one demarking Koman from all of Central Sudanic, Kunama, Saharan, and Eastern Sahelian (root 1483); one setting the Koman branch off from Kunama, Saharan, For, and Eastern Sahelian (root 1157) and another distinguishing it from Kunama, Saharan, and Eastern Sahelian (root 921); still another matching Gumuz and Southern Koman as against Central Sudanic and Eastern Sahelian (root 14); and a fifth example excluding Eastern Sahelian and Saharan (root 625).

An illustrative instance of a semantic innovation that sets off Koman in its own primary branch of the family is provided by:

Root 226. *dwɛːr 'to put together'
    Koman: Uduk 'to insert, put into, attach ax head to
       handle'
    Central Sudanic: Lugbara 'to heap up'
    Kunama 'to heap up grain'
    Saharan: Kanuri 'to gather up'
    Eastern Sahelian:
       Kir-Abbaian: Gaam 'to heap up'
       Rub: Soo 'to gather'

The non-Koman attestations all evince a specialization of the root's reference to the loose bringing together of a large number of things, often explicitly in the form of a heap, while the Koman reflex has a quite opposite connotation—the firm joining together of two things by insertion. Each meaning specialization is best and most simply explained as a separate innovation off an originally more general connotation of putting together, as reconstructed above for the meaning of the proto-Nilo-Saharan (PNS) etymon.

The postulation of a two-way, primary division of Nilo-Saharan into Sudanic and Koman branches nevertheless remains far less well established than the subsequent branchings in the subclassification. Each of those branchings is supported not only by major bodies of shared semantic innovations, as we have already seen, but by significant numbers of shared lexical replacements (Table 4.3 below), usually by several shared phonological innovations (Table 4.6 below), and by shared innovations in their pronomial systems (Chapter 8). These latter kinds of evidence, as we shall discover, provide very little in the way of additional support for the Sudanic grouping.

But there is a further, powerful datum that would seem to clinch the case for the Sudanic branch: the distribution of the so-called 'movable *kʰ-' prefix (affix 55 in Chapter 6). This morpheme was an exceedingly common and productive noun prefix element everywhere in the family—everywhere, that is, *except* in Koman, where this kind of usage is entirely lacking, *even* in fossil occurrences. Such a distribution can be explained only by the postulation that the Koman group split from the rest of the family before the use of *kʰ- as a prefix came into being. Its productivity in that form must therefore be argued to be a distinctive development of a branch of the family, namely Sudanic, that contains all the Nilo-Saharan subgroups except Koman (for more on this matter, see Chapter 6).

An overall subclassification of Nilo-Saharan

The subclassification of the Nilo-Saharan family dictated by the extensive evidence of shared semantic innovation, mutually consistent and mutually confirmatory in its indications, is outlined in Table 4.2 (language names are italicized).

Table 4.2.   Subclassification of Nilo-Saharan

I. Koman
   A. *Gumuz* (one language with a number of dialects)
   B. Western Koman
      1. Southern Koman
         a. Southwest Koman
            i. *Uduk*; *Komo*
            ii. *Opo* ("Langa")
         b. *Kwama* (North Kwama, South Kwama)
      2. *Gule*
II. Sudanic
   A. Central Sudanic
     (large number of languages with a complex internal
     subclassification, for which see Ehret MS)
   B. Northern Sudanic
      1. *Kunama* (and *Ilit*, etc.)
      2. Saharo-Sahelian
         a. Saharan
            i. Ennedian
               (1) *Zaghawa*
               (2) *Berti*
            ii. Bodelean
               (1) *Tibu* (*Daza, Teda*, etc.)
               (2) *Kanuri* (including *Kanembu*)
         b. Sahelian
            i. *For*
            ii. Trans-Sahel (provisional)
               (1) Western Sahelian (provisional)
                  (a) *Songay*
                  (b) Maban
                     (i) *Maba*; *Masalit*
                     (ii) *Runga*
                     (iii)*Mimi*
               (2) Eastern Sahelian ("Eastern Sudanic")
                  (a) Astaboran
                     (i) *Nara*
                     (ii) Western Astaboran
                       (α) Nubian (*Dongolawi, Diling*,
                          etc.; *Nobiin*; *Birgid*; *Midob*)
                     (β) Taman (*Tama, Merarit,*
                         Sungor)

               (b) Kir-Abbaian (Table 4.1 above)
                  (i) Jebel (Table 4.1, I)
                  (ii) Kir (Table 4.1, II)
               (c) Rub
                  (i) *Ik*
                  (ii) Western Rub
                     (α) *Soo*
                     (β) *Nyang'i*

The evidence of lexical replacement for Nilo-Saharan subclassification

Lexical replacement histories in basic vocabulary separately chart an overall subsclassification of Nilo-Saharan virtually identical to that required by the much broader range of semantic histories. More clearly than the available semantic historical evidence, lexical replacement histories support the division of Sahelian into For and Trans-Sahel subbranches. The linking of Songay and Maba in a Western Sahelian subgroup coordinate with Eastern Sahelian continues to be a weaker postulation, however.

This method takes a set of pre-chosen meanings and seeks to identify the root words that successively took on each particular meaning during the evolution and divergence of the languages of the family. The chosen set must be composed of meanings that tend to universal occurrence in the family concerned, and the words for which tend to high retentivity. For our purposes here, a modified form of the 100-word list of core vocabulary, based on Bender's (1971) set of ninety-eight meanings, has been reconstructed. This list has the virtue of being collectible for the majority of the Nilo-Saharan languages as well as fitting the semantic criteria of the method. To the ninety-eight meanings have been added two large animal terms, "buffalo" and "elephant," that are of similar retentivity as other items of the list. Eleven other, as yet less widely collected meanings—"finger," "upper arm," "body (of person)," "body (of animal)," "to be sweet," "to cough," "to fear," "to remember, "five," "ten," and "where?"—have also been included, to provide a sampling from other subsets of vocabulary that are composed similarly of discrete meanings of wide human acquaintance, to which this approach may eventually be extended.

To show that the use of a particular word to express a particular meaning is a diagnostic innovation of a particular subgrouping of languages, it is necessary, as argued earlier in the chapter, to identify the probable previous bearer of that meaning, still found in other subgroups of the family. Without such identification, we cannot be sure

the word in question is not simply an old shared root of limited retention today. The actual process of successful word displacement proceeds usually through two steps. At first, the older and the innovated terms coexist in use, one perhaps a bit more favored in some contexts, eventually, and it may be a long favored in contrasting situations. Eventually, and it may be a long eventually, the innovation becomes the dominant choice in all contexts, and the older root word either drops entirely from use or else survives because it has itself taken on a new, modified meaning.

Two possible histories can sometimes partially obscure this outcome. Of the two, the first is probably much more commonly encountered. But neither is common enough to confuse significantly the overall import of the method.

In the first of these histories, a language might begin to diverge into daughter languages during a period in which the retained and the innovated words for a particular meaning were still coexisting in use. In the changed sociolinguistic context brought on by such a development, the older term might well regain favor in one or more of the incipient daughter tongues, while in other daughter communities the innovation would finally fully displace the earlier word. The fact of there having been synonyms for the meaning in the mother language would be clear because different descendant languages would have retained a different one of the two synonymous roots.

The second such obscuring history, more difficult to discern in the evidence, would involve an older word retained through its having undergone a meaning shift. A variety of this type of development would be the maintenance of the older root in suppletive uses—for example, as a suppletive plural where the innovated term became the regular singular noun, or restricted to certain tenses or to just plural or singular number in the case of verbs. Rarely, these kinds of meaning shift might much later in time reverse themselves. For example, a word "to see" might, in conceding its former semantic slot to an innovated term, take on a sense best translated as "to look at"; in the differing circumstances of a much later era, that word for "to look at" conceivably might be reconverted to express "to see." Similarly a suppletive, if it maintained a sufficiently salient role, might later be regeneralized in one language or another to all cases of its meaning.

Table 4.3 presents the results of the examination of lexical replacement histories, drawing primarily on the data contained in the Nilo-Saharan Etymological Dictionary. The table is organized in sections corresponding to the successive historical stages in the evolution of the Nilo-Saharan language family. The meaning of the items of each entry is given in the first column; the innovated root in the second

column; the previously-used root in column three, with an identification of the stages of Nilo-Saharan to which it can be traced; and comments, when needed, in the last column. Roots are identified by the numbers, in brackets, under which they can be found in the Etymological Dictionary. Several roots in Eastern Sahelian or its subgroups, because of their relatively restricted distributions, have not been included in the Etymological Dictionary and so bear the notation "[not in dictionary]."

The expression "recurs" indicates, in most cases, instances where synonymous or suppletive forms probably existed during the period of language divergence, allowing the older root sometimes to be preserved. In at least one case and possibly two (see entries "small" and "night" in Table 4.3, section 4), however, a back-shifted meaning is probably involved. In two other instances, word borrowing or other areal influence is implicated (see "moon," Table 4.3, section 4, and "five," Table 4.3, section 9).

The roots themselves are presented in Table 4.3 in simpler forms than they may have in the Etymological Dictionary: tone has not been marked and, where alternative segmental reconstructions are possible, one or two salient alternatives have been chosen to represent the root. Except where stated otherwise, the number in brackets after each sub-branch corresponds to the subclassification of the sub-branch in Table 4.2. (The exceptions are the bracketed numbers for the last two sub-branches, which correspond to the subclassifications in Table 4.1, as indicated in the brackets.)

Table 4.3. Lexical replacement histories (in basic vocabulary)

Meaning	New root	Root(s) wholly or partially displaced from use	Comments
1. Sudanic [II]			
"body (of person)"	*bod [59]	PNS *bay [41]	*bay > "corpse" in PSud
2. Northern Sudanic [II.B]			
"leaf"	*Law [1360]	PNS *t'eyp^h [851]	*t'eyp^h > "grass" in PNSud (next entry)

Meaning	New root	Root(s) displaced	Comments
"grass"	*t'eypʰ [851]	PSud *sɛ or *ʂɛ [1214]	*Sɛ > "grass used as fodder" in PNSud
"long"	*ŋgɛ:ɗ [496]	PNS *tʰwal (?) [932]	
"to eat"	*ŋa [518]	PNS *θwa: [1140]	
"to bite"	*ɲɔ or *ɲɔh [387]	PNS *tɛʂ [779]	*tɛʂ recurs as "bite" in Nara of ESud
"to see"	*twi: [791]	PSud *ʈɔ or *ʈɔh [893]	*ʈɔ or *ʈɔh > PNSud "perceive, be aware"

3. Saharo-Sahelian   [II.B.2]

Meaning	New root	Root(s) displaced	Comments
"foot"	*ɗa [282]	PNS *pʰah (also PSud) [602]	
"knee"	*ʈwi [903]	PSud *ʈwi:kw (also PNSud) [904]	*ʈwi:kw > "thigh," etc. in SahSah
"tongue"	*t'el̯am [850]	PSud *ŋɛl (also PNSud) [534]	*ŋɛl > "gullet" in Sah-Sah; recurs suffixed as *ŋalt- "tongue" isolated in Nubian
"water"	*iŋgih [517]	PSud *mbih [83]	*mbi recurs in Ennedi branch of Saharan
"mountain"	*pʰɛ [626]	PNS *a:Y (also PSud, PNSud) [1537]	
"fire"	*wa:'yn [1392]	PNS *'want' (also PNSud) [1421]	
"meat"	*yen [1488]	PNS *bet' [46]	*bet' -> "flesh" in Songay
"bark"	*kʰɔ́t'i'y [1053]	PNS *ɓeɓ (also PSud) [8]	
"buffalo"	*aŋɛr [559]	PNS *biP (also PSud) [53]	
"much, many"	*ʂɔ:h [1198]	PNS *ɓi (also PSud) [13]	

Meaning	New root	Root(s) displaced	Comments
"long"	*kʰwerah [1399]	PNSud *ŋge:ɗ [496]	*ŋge:ɗ recurs isolated as "long" in Nara; > "thin and long" in Kanuri; > "size" in WNil
"cold"	*k'e:reh or *kʰe:reh [1117]	PNS *ʈʰɔs (also PNSud) [734]	*ʈʰɔs recurs as "cold" isolated in Midob of Nubian
"to hear"	*pʰɛŋ [632]	PNS *ʈi:k (also PNSud) [888]	
"to burn (tr.)"	*wa:r [1386]	PSud *'wih (also NSud) [1440]	
"to remember"	*tʰak' [794]	PNS *ka'y (also PNSud) [972]	

4.   Sahelian and Trans-Sahel   [II.B.2.b and I.B.2.b.ii]

(Sahelian, i.e., specifically including attestation in For)

Meaning	New root	Root(s) displaced	Comments
"nail"	*ma:ws [108]	PSS *tʰod [814]	*tʰod > "fingers" in Sahelian (next entry)
"fingers" (suppl. pl.)	*tʰod [814]	PNS *k'wɛy (also PSud) [1114]	*k'wɛy -> PESah "hands" (?)
"upper arm"	*tʰaB or *tʰap [835]	PNS *abi (also PSS) [75]	*abi -> "armpit" in Maba of Sahelian
"body (of animal)"	*ya:y [1484]	PSud *riŋ [1266]	*riŋ > "meat" in ESud
"louse"	*ɗɛn [408]	PSud *tʰil or *ʈʰil (and NSud)[808]	*tʰil or *ʈʰil > Sahelian "flea"
"rain"	*har [1559]	PSud *Gwi: (also PSah) [482]	*Gwi: recurs in SE Surmic of KA
"one" (adj.)	*tʰwak' [829]	PNS *ɗeh (also PSud) [186]	*ɗeh -> n. sing. pref. in For, also in pl. shape as "some"; -> "alone" in Bari
"three"	*hinɗah [1573]	PNS *Twa:nz [842]	*Twa:nz recurs as "three" isolated in Nubian of ESud

Meaning	New root	Root(s) displaced	Comments
"much, many"	*ṣɔ:haŋ [1198]	PSS *ṣɔ:h [1198]	
"to say"	*'we [1424]	PNS *t'wa: [868]	*t'wa: -> "to answer" Songay
"to see"	*ne: [257]	PNSud *twi: [791]	

(Sahelian or Trans-Sahel, i.e., not yet known from For)

Meaning	New root	Root(s) displaced	Comments
"fire"	*wa:'ysih [1393]	PSS *wa:'yn [1392]	*wa:'yn + affix > For "firestone," Maba "ash"
"moon"	*a'ye [1521]	PNS *ap'a:y (also PSud) [701]	*ap'a:y recurs in WNil but may be Koman loan there
"night"	*iṣay [1213]	PNSud *aWa:d [1465]	*aWa:d generally > "day (of 24 hours)" in ESah (recurs as "night" isolated in Nobiin of Nubian, however: reverse meaning shift?)
"ear"	*'wɛŋ [1437]	PNS *wiKin (also PNSud) [1414]	
"neck"	*p'it'ih [692]	PNSud *mɛn [120]	
"liver"	*mawɲ [106]	PNSud *ṭ'ɛz [748]	*ṭ'ɛz recurs as "liver" in Songay, > ENil "spleen"
"fingers" (suppl. pl.)	*hans [1555]	PSah *tʰod [814]	*tʰod -> "five" in TrSah
"elephant"	*oŋor [556]	PSud *kɔ:wɔn (also PSS) [992]	
"small"	*kʰaynah [1087]	PNS *ŋgwand [511]	
"white"	*pʰapʰar [609]	PNSud *aro [1288]	*aro recurs in Astaboran

Meaning	New root	Root(s) displaced	Comments
"to die"	*yɛh [1492]	PNS *wɛy (also PSud, PNSud, PSS) [1410]	*wɛy > TrSah "kill" (see next entry); also *yɛh + caus. > "kill" in Saharan: is this a PSS innovation instead?
"to cough"	*kʰɔk'ɔtʰ [1045]	PNS *k'ɪt (also PSud, PNSud) [1095]	

(Specifically Trans-Sahel, i.e., counterindicated for For)

Meaning	New root	Root(s) displaced	Comments
"leaf"	*kʰoyih [1496]	PNSud *Law (also PSud) [1360]	*Law + *a pl. -> PTrSah "grass"
"grass"	*Lawa [1360]	PNSud *t'eypʰ [851]	*t'eypʰ with added suffix recurs as "grass" in Gaam
"to bite"	*k'a'y [1086]	PSud *ɲɔ (also PSah) [387]	
"to kill"	*wɛy [1410]	PSud *pʰwi (also PSah) [670]	*pʰwi recurs in ESud: as "kill" in Jebel; in nouns for "poison" in Rub, "enemy" in SNil (see root 670)
"to be hot"	*kʰɔr [1050]	PSud *ṭ'ɔkʰ (also PNSud, For) [949]	
"to be sweet"	*kʰiy [1034]	PNS *ḷel (also PSud, For) [1337]	

5. Western Sahelian [Songay-Maba; II.B.2.b.ii.(1)]

Meaning	New root	Root(s) displaced	Comments
"head"	*bo [57]	PSS *k'e:ḷah (also PESah) [1088]	
"to drink"	*'yaŋ [1518]	PSud *ya (also PSS) [1473]	

6. Eastern Sahelian [II.B.2.b.ii.(2)]

Meaning	New root	Root(s) displaced	Comments
"tail"	*e:mp' [702]	PSud *a'we:yh (also PSah) [1442]	

Meaning	New root	Root(s) displaced	Comments
"meat"	*ariŋ [1266]	PSS *yen (also PSah) [1488]	*yen > "wild animal" in Rub
"fish"	*kʰwar(ay) [1449]	PSS *pu:n or *p'u:n [703]	
"breast"	*eyd [227]	PNS *(a)ko (also PNSud, PSah) [1001]	*(a)ko > "chest" in PESah
"tooth"	*nikʰ [267]	PNS *ṣɛ'yh (also PSud) [1187]	
"knee"	*kɔsɔŋ [1164]	PSS *ṭwi (PES *kʰuṭwi) [903]	coexisted with *kʰuṭwi in Hill Nubian, Aka-Molo-Kelo groups
"person"	*hayṭ [1567]	PNSud *kʰwa (also PSS, PSah) [1369]; PSS *ama (also PSah) [162]	*kʰwa and *ama both lasted into PESah, *kʰwa appearing today in Bertha and Nara, and *ama as a suppl. pl. in Rub
"all"	*kʰayih [1017]	PSah *ṭiwm (also PNSud, PSud) [718]	
"big"	*wah [1374]	PSud *boh (and PSS) [62]	
"small"	*ṭ'i:n [753]	PSah *kʰaynah [1018]	
"long"	*ḷa:wi'y [1332]	PSS *kwerah (also PSah) [1339]	
"new"	*ayr [1510]	PNS *ṭi:θ [716]	
"to drink"	*lɛy [1311]	PSud *ya (also PSS) [1473]	
"to eat"	*k'ap [1081] *ṭam [877] *k'ol [1098]	PNSud *ŋa (also PSah) [518]	extended shape *ŋan, rederiving meaning "to eat," appears in Taman of WAstab
"to sit"	*ɗoŋkʰw [310]	PSS *ɗoŋ (also PSah) [199]	

Meaning	New root	Root(s) displaced	Comments
"where?"	*ndayi [236]	PNS *mane (also PSah) [101]	*mane possibly recurs in Daju in new compound form

7.   Astaboran   [II.B.2.b.ii.(2)(a)]

Meaning	New root	Root(s) displaced	Comments
"ashes"	*hwɛmpɛṭ [1582]	PSud *pud (also PESah) [594]	
"bone"	*Kɛytʰ [not in dictionary]	PSahSah *ɔk or *kɔ (also PESah) [1002]	
"louse"	*ṣɛytʰi [1186]	PSah *ɟɛn (also PESah) [408]	
"star"	*wa:yn [1392]	PESah *mwe:ɲih [159]	
"who?"	*na: [247]	PSS *ndo: (also PESah) [242]	
"to eat"	*kʰal [1008]	PESah *k'ap (also PKA) [1081], *ṭam [877], and *k'ol [1098]	*k'ap and *k'ol recur in Nubian along with *kʰal; *ṭam recurs in Taman

8.   Western Astaboran   [II.B.2.b.ii.(2)(a)(ii)]

Meaning	New root	Root(s) displaced	Comments
"head"	*ur [1290]	Astaboran *k'e:ḷah (also PSS, PSah) [1088]	
"hair"	*ziɡi(r)t [1234]	PESah *ham (NSud) [1549]	
"neck"	*ewey [1429]	PSah *p'it'ih [692]	
"mouth"	*(a)kwil [1075]	PNSud *'we:ṭ' also PNSud, PSah, PESah, PKA) [1428]	
"tooth"	*ŋiar(tʰ) [538]	Astaboran *nikʰ (and PESah) [267]	

Meaning	New root	Root(s) displaced	Comments
"two"	*war [not in dictionary]	Astaboran *are (also PSud, PSS, PKA) [1287]; PNS *mbar (also PNSud, PSah) [78]	*mbar -> "twin" in Dongolawi; *are -> Nubian "20"
"to give"	*t̪'i [749]	PSah *ɲɔ: (also PESah) [389]	

9. Kir-Abbaian [II.B.2.b.ii.(2)(b)]

Meaning	New root	Root(s) displaced	Comments
"bone"	*ham [1550]	PSahSah *ɔk (also PESah) [1002]	
"hand"	*hans [1555]	PNS *pɛh (also PNSud, PSS, PSah) [569]	
"louse"	*t̪'ɛŋkw [746]	PSah *ɟɛn (also PESah) [408]	
"neck"	*ŋɛl [534]	PSah *p'it'ih [692]	*p'it'ih recurs isolated in Nyimang group
"nose"	*ɔmuh [164]	PNSud *pɔhin (also PTrSah) [599]	
"water"	*pʰey [625]	PSahSah *iŋgih [517]	
"fire"	*moah [133]	PSah *wa:'ysih (and PESah) [1393]	
"smoke"	*p'ud [not in dictionary]	PSah *t'ol (also PESah) [855]	*t'ol recurs isolated in WNil
"star"	*pant̪'aw [not in dictionary]	PESah *mwe:ɲih [159]	coexisted with *mwe:ɲih
"fly"	*kwel̪ɔŋ [1000]	PESah *aŋw (also PSud, PSah, PKA) [555]	*aŋw continues in use in Gaam, Daju, and Temein of KA

Meaning	New root	Root(s) displaced	Comments
"five"	*hansiŋ [1555]	PESah *tʰod (also PSah) [814]	*tʰod appears as loanword in Surmic
"ten"	*hansiɲ [1555]	PSah *waYeh [1390]	
"new"	*yak' [1478]	PESah *ayr [1510]	
"much, many"	*mɛl [118]	PSah *ṣɔ:haŋ (also PESah) [1198]	*ṣɔ:haŋ retained in Nilotic of KA
"who?"	*ŋa [509]	PNSud *ndo: (also PSS, PESah) [242]	*ndo: appears in Bertha extended shape _ndolo_
"to see"	*awr [not in dictionary]	PSah *ne: (also PESah) [257]	
"to sit"	*'yi [1526]	PESah *ɗoŋkʰw [310]	*ɗoŋkʰw recurs as "to sit" isolated in Majang of Surmic

10. Jebel [II.B.2.b.ii.(2)(b)(i)]

Meaning	New root	Root(s) displaced	Comments
"tongue"	*kʰalah [1008]	PTrSah *t'ɛl̪am also PSS) [850]	
"tree"	*t̪'iya [942]	PNS *'ya (also PSS, PESah, PKA, Kir) [1513]	
"rain"	*aro: [1268]	PSah *har (also PTrSah, PESah) [1559]	
"meat"	*waŋ [1369]	PESah *ariŋ (also PKA, Kir) [1266]	
"egg"	*koloh [988]	PESah *kʰwomp (also PKA); PESah *War (also PKA, Kir) [163, 1458]	
"to drink"	*mɛ:l̪ [119]	PESah *lɛy (also PKA, Kir) [1311]	

11.   Kir   [II.B.2.b.ii.(2)(b)(ii)]

Meaning	New root	Root(s) displaced	Comments
"foot"	*k'e:l̯ [1088]	PSS *ɗa (also PTrSah) [282]	
"hand"	*a'yn [1533]	PKA *hans [1555]	*hans recurs as "hand" isolated in SWSurmic of Kir
"nail"	*pʰerey [622]	PSS *ma:ws (also PESah, PKA) [108]	*ma:ws -> "hoof" in Nilotic
"fat"	*mɔ:w [145]	PNSud *pʰe (also PESah) [615]	
"head"	*we:y [1431]	PSS *k'e:l̯ah (also PESah) [1088]	
"hair"	*ye [1487]	PNSud *ham (also PESah) [1549]	*ham recurs as "hair" isolated in Surmic
"tongue"	*ŋɛpɛl̯ [535]	PTrSah *t'ɛl̯am (also PSS) [850]	
"smoke"	*LoG [not in dictionary]	PKA *p'ud [not in dictionary]	*p'ud recurs in Surma-Nilotic
"water"	*ma [97]	PKA *pʰey [625]	*pʰey is retained in Nilotic of Kir
"bird"	*awɛ [1563]	PSS *kʰipɛr (also PSah, PESah) [572]	*kʰipɛr is retained in Surmic of Kir
"elephant"	*t'ɔm [860]	PSah *ɔŋor (also PESah) [556]	*ɔŋor recurs in Surmic of Kir (possible loan < Rub?)
"five"	*me:nt' [113]	PKA *ansiŋ [1555]	
"new"	*ɲel̯ [378]	PKA *yak' [1478]	*yak' is retained in Surmic of Kir
"to drink"	*mat̯ [105]	PESah *lɛy (also PKA) [1311]	*lɛy was retained in Nilotic along with *mat̯
"to sleep"	*t̯oŋkw [891]	PESah *no:a'y (also PKA) [268]	

Meaning	New root	Root(s) displaced	Comments
"to fear"	*ɓɔkʰ [26]	PSud *ri (also PSS, PESah) [1263]	

12.   Nuba-Mountains   [Table 4.1, II.A]

Meaning	New root	Root(s) displaced	Comments
"water"	*bɔŋ [66]	PKA *pʰey (also Nilotic of Kir)[625]	

13.   Surma-Nilotic   [Table 4.1, II.C]

Meaning	New root	Root(s) displaced	Comments
"egg"	*bu:r [71]	PESah *kʰwomp and *War [163, 1458]	*kʰwomp retained in Burun of WNil
"louse"	*(a)ɲɔ [387]	PKA *t̯'ɛŋkw (also Kir) [746]	*t̯'ɛŋkw -> "mosquito" in Nandi of SNil
"neck"	*ŋud̯ [not in dictionary]	PKA and Kir *ŋɛl [534]	
"to eat"	*am [1552]	PESah *t̯am, *k'ap and *k'ol [877, 1081, and 1098]	*t̯am recurs as "to eat" isolated in Majang of Surmic; *k'ap recurs as "to eat" isolated in Kwegu of Surmic
"to be hot"	*pud [593]	PTrSah *kʰɔr (also PESah) [1050]	

Three restricted sets of resemblant words not included in Table 4.3 deserve special comment because they are commonly presumed to represent old cognates. The first set, Nyimang *te-gile* and Nubian *ge:l "red," appear to be separate derivations from a common underlying root, but that solution remains to be fully established. (South Surmic *goloɲ- "red" fails the test of regular sound correspondence in its vowel and so must attributed to a different root.)

The second set—Jebel (of Kir-Abbaian) *miz (Gaam *mĩĩ, Aka *meje,* and Bertha *misa*) and Koman *mit, both meaning "bird"—fails, despite the match of the first two segments, to show regular sound correspondence in its stem-final consonant. Direct cognation thus seems to be ruled out. The proposition that each form adds a different suffix to a common stem is currently opposed by the lack of known Nilo-Sa-

haran derivational suffixation in *z. Nor can the distinction between *t and *z in the final consonant position be satisfactorily accounted for by any of the identified processes of borrowing between Jebel and Koman groups. Because of the ancient geographical contiguity of the Jebel and Koman territories, some kind of historical connection seems probable, but at present it escapes explanation.

The third set, consisting of Kunama *duuda* and Bertha *ɗuːθa* "smoke," requires a still different explanation, namely, that each can be separately derived from a common underlying early Nilo-Saharan verb root, *ɗuː or *ɗu: (root 202). The Kunama noun itself is in fact an overt nominal derivative of the Kunama verb *du-* "to give off smoke," consisting of the verb root plus the Kunama verbal noun suffix -*d*- (< PNS *t̪' noun-forming suffix). Bertha /θ/ does not correspond in any environment to Kunama /d/, but it is the regular reflex of the Nilo-Saharan noun suffixes in *s̪, *tʰ, or *t̪ʰ. The Bertha word can therefore be understood as an independent derivation of a noun for "smoke," by adding a different noun-deriving suffix to the same verb as that seen in Kunama.

The method of lexical replacement histories works well until the earliest three branchings of a family are identified, and that limitation is reflected in the structure of Table 4.3. The inherent difficulty is that the method rests on the complementary pairing of off-setting multi-subgroup occurrences of separate roots for a meaning. Once just three branchings remain to be allocated, that requirement can no longer be met. An initial division of Nilo-Saharan into three coordinate branches, Koman, Central Sudanic, and Northern Sudanic, would produce the same general result as a division of the family into Koman and Sudanic branches, with Northern and Central Sudanic subsequently forming subbranches of Sudanic.

Specifically, if the family divided into three coordinate branches, a few roots could be expected simply by chance to have been retained only in Koman and Central Sudanic and to have been lost in Northern Sudanic and hence be missing today from all but languages of the Koman and Central Sudanic groups. Similarly, if Nilo-Saharan divided into two primary branches, Koman and Sudanic—as is argued in this book—some of the many PNS roots that lasted in use down to the proto-Sudanic stage would again have dropped out of use in the Northern Sudanic subbranch of Sudanic, but would have been retained in its Central Sudanic subbranch; and a few of those retained just in Central Sudanic would also be preserved in Koman. Either history would produce a small set of basic vocabulary roots limited today to just Koman and Central Sudanic, as set forth in Table 4.4.

Table 4.4. Roots retained in Central Sudanic and Koman

Meaning	Root	Widest found other NS root for the meaning	Comments
"mouth"	*t'waːh [868]	PNS *'wéːt̪' [1428]	*'wéːt̪' recurs in Gule of Koman; *t'waːh is restricted to S.Koman and some WCSud
"foot"	*pʰah [602]	PSS *ɗa [282]	
"tooth"	*sɛyh [1187]	PESah *nikʰ [267]	
"bark"	*ɓeɓ [8]	PSS *kʰɔ́t'i'y [1053]	
"to eat"	*θwaː [1140]	PNSud *ŋa [518]	

The first item in Table 4.4 may have been one of those terms that belonged to a pair of still coexisting synonyms during the period of divergence of its language into daughter languages, its language in this case having been PNS. Alternatively, it may have been separately derived in Southern Koman and in West-Central Sudanic from its source verb, the PNS root *t'waː "to say," for which see Table 4.3, section 4.

So small a set is not in keeping, however, with a classificatory scheme that might envision a third solution—the combining of Central Sudanic and Koman into one branch coordinate with Northern Sudanic. The size of the shared cognate set needed for such a demonstration is well illustrated by applying to Koman the method of lexical replacement histories in basic vocabulary. The Koman branch has an internal divergence not as deep as that in Sudanic, but probably almost as deep as that of Northern Sudanic. It divides into two subbranches: (1) Gumuz and (2) Western Koman, composed of Gule and Southern Koman (Komo, Uduk, Opo, and Kwama; see Table 4.2). The cognation between the languages of these two subbranches ranges around 5-7%. Yet three times as many cognate sets unique to Gumuz and Western Koman —many of them innovations separately demonstrable on morphological or semantic historical grounds (as noted in the "Comments" column in Table 4.5)—can be identified out of the 114-item list used here, as can be found for Central Sudanic and Koman (as seen in Table 4.4). (Note that a number of the roots in Table 4.5, because our cur-

rent knowledge restricts them to the Koman languages, have not been included in the Etymological Dictionary and so have no bracketed root number attached to them.)

Table 4.5. Koman shared vocabulary

Meaning	Root	Widest found other NS root for the meaning	Comments
"ashes"	Gumuz *wof-; Gule uf-un [1483]	PSud *pud [594]	derivational innovation
"bird"	Gumuz *mit-; S.Kwama bit (*b < Koman *m)	PSS *kʰiper [572]	
"dog"	Gumuz *k'owa; Komo k'au, Uduk ak'a	PSah *'wɛnṣ [1436]	
"hair"	Gumuz *bek'wa; Kwama bak	PNSud *ham [1549]	
"heart"	Gumuz *k'ub-itsa; Kwama up-iɲi	PSah *mbinɛh [84]	
"knee"	Gumuz k'uci-cukwa ; Opo k'uj-in [1110]	PSud *t̪wi:kw [904]	derivational innovation
"liver"	Gumuz andiya; Komo du heart"; Uduk adu	PNSud *t'ɛz [748]	
"louse"	Gumuz *tsukuna; Komo šuʔen	PSud *tʰiL [808]	derivational innovation
"meat"	Sn Koman *šum; Gule fum	PNS *beṭ' (and Gumuz) [46]	Western Koman innovation; Gumuz retains earlier root
"neck"	Gumuz *ɓiya; Uduk, Komo ɓaʔ, Opo biaʔ ; Gule been [14]	PNSud *mɛn [120]	semantic innovation

Meaning	Root	Widest found other NS root for the meaning	Comments
"nose"	Sn Koman *šunš; Gule fuf-an [1135]	PNSud *pɔhin [599]	Western Koman derivational innovation
"smoke"	Gumuz: Sese suŋwa; Kwama siŋk [1157]	PSah *t'o:l [855]	semantic innovation
"star"	Gumuz *biža; Kwama *biz-	(no roots earlier than PESah)	
"stone"	Komo ɔš, Uduk wos ; Gule ɔf	PSah *it' [873]	Western Koman attestations
"sun"	Opo ta: ; Gule ta' [739]	(no roots as yet earlier than KA)	Western Koman attestations
"water"	Gumuz *aya; Kwama iyaʔ ; Gule aya [1470]	PSud *mbih [83]	derivational innovation
"good"	Gumuz dagəx; S. Kwama digaʔ	(no early roots as yet)	
"many"	Komo ɗelin; Gule deel-uk	PNS *ɓi [13]	Western Koman attestations
"white"	Uduk kus ; Gule -kus	PNSud *aro [1288]	Western Koman attestations
"to drink"	Gumuz *f(i)-; Komo pe, Uduk pʰi, Opo pii [625]	PSud *ya [1473]	semantic innovation (< wet")
"to give"	Gumuz *c-; Uduk cʰi [921]	PSah *ɲɔ: [389]	semantic innovation
"to kill"	Gumuz *šok'w-; SnKoman *k'oš	PSud *pʰwi [670]	probable chance resemblance

The evidence of phonology for Nilo-Saharan subclassification

A classificatory tool of potentially similar power to that of the semantic histories is the method of ordered sound-shift histories (for extended applications of which see Ehret 1980). This method first lays out, by reasoning from what we now know about "naturalness" of the different directions and steps in sound change, the most economical

ordering of the probable shifts by which a language's phonology can be derived from that of the proto-language, and then compares its ordering with the orderings of sound change, similarly derived, for other languages of the family. Such sequencings are proposed for key Nilo-Saharan languages, to the extent possible from currently available evidence, in the Commentaries to Tables 2.9, 2.10, 3.1-3.4, and 3.5.

For Nilo-Saharan the evidence does not reveal the kind of complex histories of sound shift that allow full play to this method, as are encountered, for instance, in Southern Cushitic (see Ehret 1980). Across the Nilo-Saharan family there have been widespread regional tendencies in sound change—especially in the western languages toward entire loss of the feature [+glottal] and of the feature [+dental], and especially in the more easterly languages toward simplification of prenasal stops. A number of other trends of change occur widely all across the Nilo-Saharan field: the falling together of PNS *l and *ḷ (in the west because of the loss of [+dental]) and of PNS *g and *ɠ; the devoicing of PNS *z, the shifts of PNS *pʰ to /f/ and of *p to /b/; and the tendency of PNS *ɗ and non-aspirated *ṭ to become alveolar.

But the method of ordered sound-shift histories nevertheless has important contributions to make in Nilo-Saharan classification. It frequently allows one to see where to place a sound shift, even a seemingly widely duplicated one, in the evolution of a particular language's phonology, and to distinguish such shifts from those that actually do derive from more ancient, shared innovations. For example, the deglottalization shifts among Nilo-Saharan languages tend to fit differently into the probable courses of change in different languages, whereas certain of the simplifications of prenasal stops in the eastern languages instead appear to trace back to earlier sound-shifts common to the ancestry of several subgroups of Nilo-Saharan. Moreover, the evidence of this method for Nilo-Saharan subclassification conforms fully with those of the method of semantic histories: for each of the major eras identified repeatedly so far in this chapter, the data of Table 4.6 attest notable shared phonological or phonetic innovations.

Such innovations at the earliest stages of Nilo-Saharan divergence are relatively few. Apparently the fundamental distinctions of the PNS consonant system long persisted, and most of the early sound shifts simply redistributed or rearranged existing elements of the system. Table 4.6, which sums up the identifiable rule changes and arranges them by the era of divergence to which they can be traced, applies the evidence of Tables 2.9, 2.10, and 3.1-3.5 in conjunction with those sections of the Commentaries to 2.9, 2.10, 3.1-3.4, and 3.5 that are entitled "Wider-distributed shared sound shifts." The numbering given the Nilo-Saharan branchings is the same as in Table 4.3, which

presents the subclassificatory evidence of lexical replacement. The notation "(provisional)" in Table 4.6 denotes a sound change common to the member languages of a particular subgrouping, but one that, in view of its separate recurrence elsewhere in Nilo-Saharan, could reflect linguistic drift in the family and thus might have arisen separately in different branches of that subgroup.

Table 4.6. Sound shift evidence for subclassification of Nilo-Saharan

II. Sudanic

1. See Northern Sudanic rule 2 below for possible sound shift that just might belong here.

II.B. Northern Sudanic

1. PNS *kʰ + *WV$_F$C > kʰV$_R$C /#__#, where V$_F$ = [+front] and V$_R$ = [+round]. This process represents a long-current synchronic rule for prefixing the *kʰ noun prefix to a stem.
2. PNS *b > *m /#rV_#. This shift could possibly date to proto-Sudanic, but the entire loss in Central Sudanic of the final nasals of Nilo-Saharan #CVN# roots and of final *b in *#rVb# shapes makes this problem impossible to resolve.
3. PNS *ṭʰ > *[č] /V_. This shift might alternatively have arisen separately in Kunama and Saharo-Sahelian; in that case it would be subsumable in the latter branch under Saharo-Sahelian shift 2.
4. PNS *ṭ' > ṭ in two affixes, 15 and 28 (discussed in Chapters 5 and 6).

II.B.2. Saharo-Sahelian

1. PNS *nð > *nz.
2. PNS *ṭ' > [č'] /V_.

II.B.2.b. Sahelian

1. PSS *nz > *z.
2. some PNS *u > *i /Y_C#, C not yet defined.

II.B.2.b.ii(1). Western Sahelian (Songay-Maban)

  1. PNS *k > *g, *p > *b.

II.B.2.b.ii(2). Eastern Sahelian

  1. PNS *#ŋg(w)V# > *#ŋV# in nominals.
  2. PNS *d > *r /#CV_# (word-final, but not verb-stem final).
  3. PNS *ɛ, *e > *e ~ *a /#N_S(V), S = sonorant, V not = [+high]? For probable limiting factors in this shift, see Commentary to Tables 3.1-3.5.
  ·3. PNS *ns > *ss, *nṣ > ṣ (proposed, but needs more evidence)
  4. PNS *#Vŋ(g)# > #ŋ(g)V# (just 2 examples, though: roots 517 and 554.
  5. PNS *k > [k^h] /#_ (provisional).

II.B.2.b.ii(2)(a). Astaboran

  1. *ḍ > *j; and separately:
  2. *ṭ > *ṱ (provisional).
  3. *ɗ > *r /V_ (provisional).

II.B.2.b.ii(2)(a)(i). Nara

  1. *t > d, *p > b; followed by:
  2. deletion of feature [glottal]; and also:
  3. deletion of dental/alveolar distinction; which came before:
  4. *t^h > *č; which preceded:
  5. *č > *š; after which:
  6. *š > s. Still later:
  7. *j > *ž; followed by:
  8. *z > s, *ž > š; after which additional /š/ were created by:
  9. *t > š /_i; and by:
  10. *s > š /_i.

II.B.2.b.ii(2)(a)(ii). Western Astaboran

  1. *p' > *ɓ, *p > *b; and:
  2. remaining *T > *Ṱ; were followed by:
  3. deletion of feature [dental]; along with:
  4. *NC^h > C^h; all preceded:
  5. Ç' > Ç^h (by which, among others, *t' > *t^h, *k' > *k^h).

II.B.2.b.ii(2)(b). Kir-Abbaian

  1. PNS *ɛ(:) > *ɪ(:), *ɔ(:) > *ʊ(:) /#C_N(C$_2$), C$_2$ = [-voice]; then:
  2. PNS *NÇ̧ > N, where Ç̧ = *p or *k; after which:
  3. *NÇ̧^{h} > Ç̧^{h}, *NÇ̧' > Ç̧', *NÇ̧ > Ç̧.
----
  4. PNS #iC# > -Ci-, C = [-voice/+obstruent], upon addition of any affixation.
  5. PNS *h > Ø /#_ (provisional).
  6. PNS *'w > *w, *'y > *y (provisional).

II.B.2.b.ii(2)(b)(i). Jebel

  1. PNS *ṭ > *ṭ^h ; followed by:
  2. *ṭ^h > *c.
----
  3. PNS *k > *k^h /#_V (but not /V_).
  4. PNS *ṭ' > *['j] /#_iC.
  5. PNS *i(:) > *ɛ(:) /#S_1, S = [+sibilant].
  6. PNS *ɔ > *a, *o > ɔ /#K_C, C = [-voice].
  7. plural by *V > VV /C _1 (e.g., roots 636, 646).

II.B.2.b.ii(2)(b)(ii). Kir

  1. PNS *e > *i /#C_d(-)#. Examples of C = *p' and *k have been noted, suggesting that C = some subset of the PNS voiceless stops.
  2. PNS *t^h > *c /#_.
  3. PNS *ṭ > *ṭ^h, *k > *k^h.
  4. PNS *ɟ > *g (provisional).

II.A (Table 4.1). Nuba Mountains

  1. PNS [+glottal] > Ø (provisional).

II.C (Table 4.1). Surma-Nilotic

  1. PNS *ŋg > *ŋ, *mb > *m, in all environments.
  2. PNS *nd > *d (> *j) /#_, > *ɲ /V_ (postvocalic shift is known so far only from examples in Nilotic; Surmic cases remain to be verified).
  3. PNS *nd > *d, and:

4. PNS *r > *R /V_ (undetermined kind of flap or trill); after both of which:

5. *d > *r /V_. In addition, one example (with no counter as yet) indicates that:

6. PNS *l > *n /#VŋV_# (see root 557).

Morphemic innovation and Nilo-Saharan subclassification

Two other large bodies of evidence, developed in Chapters 5-8, provide further confirmation for the subclassification of the Nilo-Saharan family established by the method of semantic histories. Chapters 5-7 present the reconstructible stem and affix morphology of early Nilo-Saharan, while Chapter 8 proposes a history of pronouns in the family. The tack taken with these data has been not to list the individual innovations attributable to particular stages in the evolution of Nilo-Saharan, but rather to show, in Chapters 5-7, how the meanings and overall distributions of the different particular affixes and, in Chapter 8, how the different pronomial roots align in ways that make both individual and systemic sense once they are fitted into the subclassification of Table 4.2.

The notable feature of this approach in Chapters 5-7 is its revelation of systemic shifts in morphology that are datable to particular eras—of the expansion of suffixed case marking at the PNSud stage, for instance, and of its decline at and after the proto-Eastern Sahelian (PESah) stage; of the innovation of noun singular marking at the proto-Sahelian stage (as opposed to unmarked singular previously); and of the innovation of new formats for pluralizing morphemes at several periods.

Similarly for the complex arrays of reconstructible Nilo-Saharan pronomials considered in Chapter 8, this approach allows a consistent historical ordering of the appearance of different pronoun roots to be proposed and, from these data, provisional layouts of the pronomial systems to be made for different stages in the family's history. Again, as for the affixal morphemes, so for the pronouns do systemic shifts emerge in the evidence—for example, the development at the proto-Sahelian (or proto-Trans-Sahel) stage of a specific marker of topicality in pronouns, displacing the previous distinct topic pronouns in all but first person, and then at the proto-Eastern Sahelian stage the relexicalization of topicality in all but the third person pronouns. In each case, the subclassification of Nilo-Saharan found in Table 4.2 works; that is, it provides an economical and consistent historical ordering to each of these arrays of morphemes.

CHAPTER 5

ASPECTS OF NILO-SAHARAN MORPHOLOGY: VERB DERIVATIONAL PROCESSES

Stems and affixes in PNS

As is seen in Chapter 2 and is apparent in the Etymological Dictionary, proto-Nilo-Saharan (PNS) normally had three possible stem shapes, C(w)V, C(w)V(N)C(w), and V(N)C(w), in each of which V could occur long or short. One noun is also provisionally reconstructed with the form V (root 1598).

The stem could stand alone as a word, or it could combine with a large number of affixes. The great majority of these were suffixes, of the forms -V, -VC, and -(V)CV, in the latter two of which the first V was sometimes inherent in the morpheme and at other times replicated the stem vowel. Uniquely in Central Sudanic, many of the suffixes, where preserved, were moved to a prefixed locus of application. A lesser number of prefixes of the shapes V-, VC(V)- and CV-, many of them in verb conjugation, also existed.

A few PNS stems seem to depart from the normative patterns, turning up with the reconstructed shapes *VCV or *VCVC. But in these instances the initial vowel can be attributed to the attachment of one of the two known PNS *V- derivational prefixes *a- or *ɔ-/o-, to the underlying *CV or *CVC root. Three of the independent pronouns of PNS *íní "you (sing.)," *únū "he, she, it," and *áná "we (inclusive)," also have a shape VCV. Here it appears that old derived forms of a different origin are present, composed of vowel person marking plus a former pronomial or demonstrative base in *n (see Chapter 8 for discussion). The pronoun format *VCV lasted into the later eras of Nilo-Saharan history as a recurrent template for deriving new pronouns from different bases in C and as an irregularly recurring canonical shape of independent pronouns.

Well over one hundred affixal morphemes of early Nilo-Saharan are identified in the following hundred-plus pages of Chapters 5-7. They include verb extensions, noun- and modifier-deriving affixes, and markers of number, case, tense-aspect, and person. Where the specific reflexes of derivational affixes are no longer productive, their lexicalized attestations among the data of the Etymological Dictionary are listed here by language and root number of their occurrence. The

productive reflexes of such affixes, and also their reconstructed Central Sudanic outcomes (from Ehret MS), are normally simply cited by language, without further comment, although specific examples from the Dictionary may sometimes be noted in addition. The sound correspondence patterns among these and the other morphemes to be discussed in this chapter and in Chapters 6 and 7 can, of course, be located in the discussions and tablings of Chapters 2 and 3.

A range of verb extensions were productive in the earliest Nilo-Saharan eras, as presented in List 5.1.

List 5.1.   Verb derivational affixes in early Nilo-Saharan

A. PNS verb extensions

1.	*-ut^h	continuative	11.	*-Vp^h	extendative intensive
2.	*-up	extendative	12.	*-it̪'	iterative intensive
3.	*-aɲ	extendative	13.	*-ɛŋ,	
4.	*-el,			*-ɔŋ	punctive
	*-il	iterative	14.	*-ɛːyl̪	intransitive
5.	*-uːr	iterative	15.	*-it̪'	causative (NSud *-it̪)
6.	*-an	durative	16.	*-iṣ	causative
7.	*-is	progressive	17.	*-i	itive
8.	*-a'y	essive-active	18.	*-uh	venitive
9.	*-am	iterative concisive	19.	*-a	dispunctive
10.	*-uθ	intensive			

B. Sudanic and Northern Sudanic extensions

20.	*-Vk	intensive	23.	*-ik	causative
21.	*-Vk^h	iterative	24.	*-aw	punctive
22.	*-ak^h	intransitive	[15.	*-it̪	causative (< PNS *t̪')]

C. Extensions of areally restricted distribution

25.	*n	causative	26. *d	causative

The attestation of these extensions in particular languages takes three forms. In some cases, their reflexes are still productive in the modern language. In other instances, paired forms of a root appear in a language, one without and the other with a particular extension added; the comparative meanings of the two forms then allow internal reconstruction of the meaning of the now fossilized extension. Third-

ly, a Nilo-Saharan root can occur in different languages, with and without the extension, with the presence and the meaning of the extension in this case decipherable by comparative reconstruction.

Various additional verb extensions, limited to particular narrow subgroupings of Nilo-Saharan, have been identified by other scholars. But these arose at much later stages in the family's history and, although cited in the Etymological Dictionary when relevant to the interpretation of a particular root, have in general been left out of this study. Two exceptions to this tactic have been allowed, however. A causative in *n (affix 25 below) and a causative in *d (affix 26), have been dealt with in this chapter because their distributions are such that they might be thought to be older formatives than they actually are.

In the presentation of the verb extensions in this chapter and the nominal affixes in Chapter 6, a large body of supportive evidence from the Etymological Dictionary is cited. These citations consist of two columns, the first column listing the language and its postulated form or forms for the particular suffix, and the second noting the inferred effect of the affix in that language along with particular dictionary entries attesting the item. For some languages an affix may be given without citations from the dictionary; these are cases in which its current productivity in the particular language is well established in the existing scholarly literature.

Verb extensions of manner in PNS

At least sixteen verb extensions that convey additional information about the *manner* in which an action is carried out can be firmly reconstructed for PNS.

Of these, the extension perhaps most widely still productive today, affix 1, imparted ongoingness or open-endedness to the action of the verb to which it attached. (The voiced and voiceless variants in the Nubian and Daju cases noted below reflect the operation of morphophonemic rules in the languages involved).

1.   *t^h (*-ut^h)   continuative

Koman: Gumuz -ut-	extended action (root 976)
Gule -ut-	ongoing action (root 354)
Uduk -t	ongoing action (root 708)
Sudanic *-t^h	extended action (root 648)
CSud: PCS *-tV, *-ta	repetitive or extended action suffix
NSud *-t^h	extended action (roots 666, 1370)

Kunama -t-, -Vt-	pluractive, extended action, or inchoative (roots 12, 39, 89, 152, 430, 447, 449, 524, 528, 549, 662, 685, 876?, 1043, 1109, 1126, 1156, 1184, 1283, 1319, 1370)
Saharo-Sahelian *-t	open-ended action (roots 823, 1301)
Saharan: Kanuri -t	passive-reflexive (productive)
-t, -at, -ət-, -it-	extended action or repeated action (roots 54, 111, 119, 204, 253, 266, 302, 325, 343, 356, 360, 389, 397, 444, 505, 540, 552, 568, 574, 584, 595, 616, 627, 632, 647, 654, 663, 742, 823, 863, 865, 876, 957, 1065, 1109, 1113, 1147, 1178, 1196, 1236, 1265, 1307, 1315?, 1319, 1440)
For -t	repetitive action (roots 129, 396, 1531)
Songay -t-	extended action, repeated action (roots 43, 82, 196, 353, 386, 500, 635, 650, 1041, 1056, 1331, 1365, 1505)
Maban -tV-	plural object marker of verb
Astaboran:	
Nara -t	extended action (root 268, 769)
Tama -ut-, -t-	repetitive action (root 266, 426, 823)
proto-Nubian *-t	extended action (roots 636, 1093)
Dongolawi -d, -t	extended action or repetitive action (roots 327, 543, 575, 1152, 1275, 1304, 1405, 1444, 1445)
Nobiin -t	repeated action (roots 626, 1152)
Diling -t, -d	extended action (roots 191, 350, 402, 1064, 1554); repetitive action (root 1340)
Midob -Vda	plural action (productive?)
proto-Kir-Abbaian *-t	extended action (root 69)
Kir-Abbaian:	
Gaam -d-	extended action (roots 36, 49, 145, 233, 260, 365, 467, 571, 632, 754, 892, 894, 1084, 1438)
C.Jebel -t-, -d-	extended action (roots 373, 529, 626)
Bertha -d- (/NV_-)	extended action (roots 69, 99, 250, 1006)

Nyimang -Vd-	extended action? (root 204)
Temein	uncertain (root 544)
Daju -t-, -d-	extended action (roots 260, 292, 580, 891, 1253, 1295, 1371, 1372)
Surmic: Majang -Vt	lasting outcome? (root 585)
Nilotic *-t	extended action (roots 11, 28, 43, 62, 69, 88, 110, 115, 150, 157, 158, 171, 196, 208, 341, 346, 367, 392, 463, 612, 739, 823, 825, 876, 893, 899, 939, 1189, 1193, 1216, 1228, 1268, 1269, 1274, 1277, 1299 [*-ut], 1347, 1370-1372, 1416, 1444, 1489, 1519)
ENil: Lotuko -atyo ,	
Lopit -ita , -ita	frequentative, continuative
Ongamo -ito , -ita	progressive
SNil *-ɪ(:)t	inceptive
*-t- in *-ta-	consecutive
*-t- in *-to:s	contemporative
Rub: Ik -(V)t-, -at-, -ot, -it	extended action (roots 115, 132, 177, 181, 356, 644, 654, 711, 918, 943, 962, 1076, 1149, 1161, 1201, 1254, 1274, 1269, 1296, 1476, 1539, 1544)
Soo -t, -Vt, -it	extended action (roots 1004, 1065, 1373, 1401, 1412)
Nyang'i -(t)i	habitual marker of verb

The various particular outcomes of this suffix suggest that its original reconstructible shape was possibly *-ut[h] (see Koman evidence in particular), but it also early evolved the additional shapes *-at[h] and *-it[h]. The neat parallel between the vowel component and the three verb directional markers, *i- itive, *-uh venitive, and *a dispunctive (for which see affixes 17-19 below), raises the possibility that the three shapes of *-Vt[h] may have arisen as compounds of directional suffix plus the *t[h] continuative.

At least five other PNS verb extensions (2-6) also conveyed some kind of pluractional meaning to verb roots. What distinguished them from each other in their semantic effects is often unclear in the present state of our knowledge.

2. *p   (*-up)   extendative

PNS *-p	extended action (root 865); repetive action (root 434)
Koman: Uduk -up, -Vp^h	extended or repetitive action (roots 1025, 1066, 1181, 1399)
Kunama -Vb-	repeated or long extended action (roots 358, 452, 755, 794, 816)
Saharo-Sahelian *-Vp	extended action with repetitive movements (root 858)
Saharan: Kanuri -Vp-, -ap, -av-, -w- /-v-, -ip (all < /b/)	extended action or outcome (roots 246, 476, 490, 550, 664, 744?, 770, 785, 788?, 883, 919?, 1093, 1158, 1160, 1169, 1338)
For -ib-	set of repeated actions (root 704)
Songay -b- /C_; -ow /_# (< *-ab#)	extended action (roots 82, 447, 911, 974, 1055)
Eastern Sahelian *-p	extended action (root 1081)
Astaboran: Nub: Dongolawi -Vb-, -ub-	repetitive or extended action (root 1056); repetitive action (root 1083)
Kir-Abbaian: Bertha -b-	extended/repetitive action (root 1135)
Nilotic: PNil *-Vp	extended action (root 1046)
SNil *-Vp	extended action (root 1013)
Rub: Ik -ib	extended action (root 255, 291)

The rarity in Eastern Sahelian, and especially in Kir-Abbaian, of occurrences attributable to this extension suggests that it may already have been moribund in proto-Eastern Sahelian (PESah) and probably had become fully non-productive by the subsequent Kir-Abbaian era, with its few instances in Kir-Abbaian being lexicalized remnants of its former activity.

3. *ɲ   (*-aɲ)   extendative

PNS *-ɲ	extended action (root 121)
Koman: Uduk -Vɲ	extended action (root 1284)
proto-Sudanic *-ɲ	extended action (root 159?)

Saharan: Kanuri -n	extended action (root 452?)
proto-Sahelian *-aɲ	extended, repetitive action (root 151)
For -Vɲ	repetitive action (roots 751, 1094)
Astaboran: Nub: Diling -ɲ	intransitive extended action (root 1139)
Kir-Abbaian: Gaam -ɲ-	intransitive (root 528)
Daju *-Vɲ	intransitive extended action (root 1371)
Nilotic *-ɲ	extended action (root 529)
Rub *-ɲ (*-aɲ ?)	extended action (root 554)

This last extension is nowhere attested as productive and is so rare and scattered in its occurrence that it most probably lost its productivity early in the evolution of Nilo-Saharan. Most, if not all, of its attested occurrences would therefore be surviving lexicalized forms.

4. *l   (*-el, *-il)   iterative

PNS *-il	extendative or iterative (roots 1345)
Koman: Uduk -Vl-, -ul	repetitive action or frequentative (roots 225, 326, 824, 847, 848, 947, 1175, 1439)
CSud: PCS *l-	pluractive
Kunama -Vl-, -il-	frequentative, extended action (roots 146, 176, 696, 1124, 1232)
Saharo-Sahelian *-el	iterative (root 630)
Saharan: Kanuri -Vl- -al, -al, -il	repetitive (roots 404, 1415) intensive (roots 104, 351, 574, 719, 920, 927, 939?, 1415, 1500)
For -(i)l-, -ul-, -ol-, -Vl-	repetitive or frequentative (roots 627, 695?, 1084, 1278, 1395, 1520)
Songay -Vl	extended action or repetitive action (roots 212, 335, 392, 831)
Maban: Maba -Vl-	extended action (root 874)
Kir-Abbaian: Gaam -Vl-	repetitive action (root 138, 315)
Bertha -ul-	extended action (root 1053)
Temein: Jirru -il-	extended action (root 105)
Daju -l	extended action (root 1355)
Nilotic *-Vl, *-el	extended action and iterative (roots 388, 522, 1264, 1342)

The rarity of *l anywhere in Eastern Sahelian suggests that it may already have become unproductive in PESah and that its remaining occurrences are lexicalized relicts.

The vowel component of the *p extension, when not replicating the stem vowel, can show up as *i, *a, or *u—as is true of the *t^h extension—suggesting a possible compounding of the directional markers (affixes 17-19 below) with the *p extension of manner. The form *-up, seen both in the distantly related subgroups Koman and Nubian and from proto-Saharo-Sahelian (PSS), is the best candidate for its original vowel accompaniment. An alternative shape *-ip, found in Sahara, For, and Ik goes back at least to PSS. The iterative in *l may have had a similar history, with perhaps the shapes *-il, *-el being original. For the *ɲ continuative, however, only a single non-determined vocalization is indicated so far by its reflexes, namely *-aɲ.

5. *r (*-ur) iterative (plureffective?)

PNS	iterative extended action (roots 664, 1524, 1541)
Koman: Uduk -ur, -Vr	iterative (roots 362, 831, 1043, 1052, 1116, 1439, 1531)
CSud: PCS *r-	iterative/extendative (PCS *r- > suffix in Moru-Mangbetu subbranch of CSud: example root 618, 641)
Kunama -Vr-, -ur-, -or-	repetitive action (roots 73, 74, 417, 491, 596, 781, 794?, 841, 866, 920, 927, 959, 983, 1039, 1056, 1084, 1136, 1159, 1208, 1406?)
Saharan: Kanuri -Vr, -ur, -ar	iterative (roots 373, 802, 838, 848, 947, 954, 1224, 1232), extended action (roots 770, 838, 1535); intensive (root 742)
For -ur-, -ir-	extended action (roots 627, 1006)
Songay -VVr-, -o(o)r-	iterative (roots 428, 635, 916)
Astaboran:	
Nub: Dongolawi -ir-, Vr-	verb marker of plural object; iterative? (root 1014)
Kir-Abbaian:	
Gaam -Vr-	extended action (roots 158, 173, 348, 840, 997?, 1035)
Dinik –ir-	iterative? (root 435)
Nilotic: Teso -Vr-	iterative? (root 1328)

Rub: Ik -Vr	iterative (roots 138, 720, 726, 831, 1342, 1582)

This extension apparently remained productive into early Eastern Sahelian and remains, in a modified meaning, a lively formative element in Dongolawi. Among the Kir subgroup of Eastern Sahelian, however, it appears to have entirely dropped out. The most broadly attested undetermined vowel shape for this extension is *-u:r, and thus the forms *-ir and *-ar are the most likely later developments. The shape *-or/ *-ɔr attested in Kunama and Songay may be an early allomorph originally attached to stems with minus-high stem vowels. Another Songay shape, -oori, probably reflects underlying *-aw-r-, combining the *-aw punctive (affix 24 below) with this extension.

6. *n (*-an) durative

Koman: Uduk -Vn, -an	durative (roots 42, 487, 705, 722, 770, 918, 1184, 1207, 1260, 1515)
Gule -en ?	durative? (root 1539?)
Gumuz -N-	frequentative
Sudanic *-n	durative (root 416)
CSud: WCSud: BB *n-	durative (?)
Northern Sudanic *-n	denominative (roots 105, 1405?)
Kunama -Vn-	extended activity (roots 115, 485, 699, 784, 866, 916, 1041, 1147, 1205?, 1339?, 1371, 1406?, 1521)
Saharo-Sahelian *-(a)n	durative (roots 20, 290, 444)
Saharan: Kanuri -Vn, -an	durative and repetitive action (roots 28, 69, 153?, 330, 452, 577, 654, 854, 863, 962?, 1224, 1598)
Sahelian *-n	durative (roots 211, 990)
For -Vn-	durative (roots 257, 876)
Songay -(V)in, -na	durative (roots 100, 121, 220, 229, 252, 328, 384?, 395, 500, 629, 668, 840, 894, 939, 1034, 1043, 1056, 1100, 1193, 1424, 1432, 1437, 1440, 1571)
Maban: Maba -an, -un	durative (roots 1578, 1596)
Astaboran:	
Nara -Vn	durative (roots 653, 1100)
Tama -Vn-	durative (roots 310, 518, 1278)

Dongolawi -*Vn* — inchoative (roots 10, 444, 626, 902, 996)

Kir-Abbaian:

Gaam -*(V)n*-, -*in*-, -*ən* — durative, sometimes inchoative (roots 27, 56, 70, 147, 255, 263, 356, 403, 468, 522, 589, 607, 622, 626, 632, 651, 652, 661, 652, 712, 736, 740, 938, 945, 954, 1016, 1229, 1260, 1271, 1331, 1364, 1412, 1424, 1438, 1556)

Gaam -*n* — habitual and present tense

C.Jebel *-in, *-an, *-ən — durative? (151, 529, 625, 628, 815, 1180)

Bertha -*ɔn*-, -*(i)n*- — durative (roots 877, 1084, 1519, 1557)

Nyimang -*n* — durative (roots 618, 758, 1424, 1449)

Temein -*in* — durative (root 199)

Daju *-(a)n- — durative (roots 115, 503, 1372)

Nilotic *-(a)n — verb-final element of root with durative or inchoative implication (roots 111, 170, 245, 264, 381, 433, 462, 489?, 516?, 529, 554, 653, 749, 759, 777, 799, 824, 863, 962, 1100, 1176, 1182, 1305, 1325, 1342, 1371, 1386, 1421, 1427, 1486, 1500, 1519)

ENil *-an, *-ɔn, *-on — inceptive (e.g., root 1387, etc.)

Rub: Soo -*an, -n* — durative (roots 31, 92, 137, 170, 171
Ik -*an, -n* — 436, 529, 768?, 770, 774, 1016, 1076?, 1281, 1312, 1345, 1411, 1605)

To the *n durative probably can be attributed an original shape *-an, so widely and generally does this shape appear in the evidence.

Repetitive action could also apparently be connoted from an early point in Nilo-Saharan history by reduplication, a process that appears widespread and sporadically in most subgroups of the family. A variation of this process was the gemination of the stem-final consonant of a verb, found in Kunama, Songay, and Dongolawi. This latter operation may have derived separately in each language through vowel deletion in a partially reduplicated stem: $C_1VC_2VC_2 > C_1VC_2C_2$. But it could also be an old feature, traceable, in view of its presence in Kunama, to at least the Northern Sudanic stage.

Another extension of PNS was widely used to impart a sense of extended action to the meaning of a verb. As is not uncommon in such an extension, it was capable of taking on inchoative (Kunama), essive (Kalenjin), and passive (Rub) senses:

7. *s   (*-is)   progressive

PNS *-s — extended action (root 126); inchoative (root 1481)

Koman: Uduk -*Vs, -us* — durative (roots 102, 1537?, 1570)

Sudanic *-is — extended action (root 250)

Northern Sudanic *-is — extended action (root 587)

Kunama -*s(V)*- ([š] /_i) — inchoative (roots 67, 1233, 1505); extended action (roots 539, 1432)

Saharan: Kanuri -*as, -as, -Vs* — extended action (roots 199, 315, 548, 760, 783, 793, 802, 818, 825, 887, 1049, 1383)

For -*s* — extended action (root 823)

Songay -*s* — extended action (roots 939, 951, 1505, 1578)

Maban: Maba -*Vs*- — verb suffix of plural object or plural action (productive)

Astaboran:

Tama -*s* — extended outcome (root 1384)

Nubian: Diling -*š* — extended action (root 461, 1383)

Dongolawi -*is* — extended action (root 1383)

Nobiin -*s* — extended action (root 1370)

Kir-Abbaian:

Gaam -*(V)s*-, -*is*- — extended outcome (roots 307, 310, 406, 736); extended action (root 930)

C.Jebel *-εs-, *-s- — extended action (roots 625, 1560); uncertain (roots 662, 1180)

Bertha -*Vš*- — extended action (roots 199, 288, 696, 769, 812)

Dinik -*s* — intransitive (root 738)

Daju *-(a)s — extended action (root 260); uncertain (root 291)

Surmic *-is — repetitive movement (root 2)

Nilotic:

SNil [*-o:s
in *-to:s — contemporative (*-o:s, LOAN, probably from Rub)]

SNil [*-i:sy-	essive: LOAN from unknown source]
Rub: Ik -os-, -ɔs-, -s	passive" (according to Heine MS)
Soo -θ, -eθ	extended action (e.g., roots 431, 990, 1411)

The original shape of the progressive extension was apparently *-is. The Ik (Rub) and Kanuri reflexes suggest that an alternative shape with a long low-back vowel, *-ɔ:s, had arisen by Saharo-Sahelian times. This form perhaps combined *-aw punctive (affix 24) with this extension, in an underlying shape *-aws.

A further PNS verb extension, 8, has had a variety of particular effects on verb meanings, sometimes essive, sometimes imparting ongoingness to an action, and sometimes detransifying in one manner or another. It can be suggested to have originally had some such connotation as "to be in the act of, undergoing, in the state or condition of." The provisional designation "essive-active" has been chosen here for this extension. In its productive versions in Astaboran and Kir-Abbaian of Eastern Sahelian, it has commonly become a detransifier.

8. *-'y (*-a'y)   essive-active

PNS *-'y or *-a'y	repetitive action (roots 1086, 1418)
Koman: Uduk underlying *-y	extended or repeated action (roots 327, 704)
CSud: PCS *-i (< *-i'y), *-e/*-ε (< *-a'y)	inchoative-active
PSud *-a'y	intransitive? (root 134)
Kunama -ai-, -ei-, -i-	extended action (roots 102?, 146, 258, 693, 840, 1177, 1182, 1300, 1503); repeated action (roots 785, 893, 1344, 1371); intransitive (roots 35, 136, 1381)
Saharo-Sahelian *-a'y	repetitive action (roots 388, 1412)
Saharan: Kanuri -e, -ai, -oi	extended action (roots 411, 600, 618, 620, 641, 1059, 1090?, 1108, 1109, 1118, 1184, 1331, 1536; essive (roots 668, 1328?, 1324); intransitive (root 946)
Sahelian *-'y	extended action or condition (roots 42, 462, 1336)
For -iy-, -y-	extended action (roots 462, 704, 1153 ?); intransitive (root 1145)

Trans-Sahel *-'y	extended action (root 463)
Songay -ey, -i, -e	extended action (roots 154, 198, 289, 394, 461, 631, 740, 774, 840, 857, 1010, 1283, 1433, 1475?, 1480); extended outcome (roots 463, 1481); repetitive action (roots 157, 292, 775, 1515); essive (roots 123, 124, 310, 674, 718, 1189, 1190, 1220, 1288, 1476, 1542, 1545); (root 1054); de-nominative (roots 570, 1434, 1371)
Maban: Maba -i, -e	reflexive/inchoative (e.g., roots 43, 1013)
Astaboran:	
Nara -ei	"neuter-passive" (inchoative, essive)
-ai-	extended action (root 1447)
Tama -ay-	extended action (root 415)
Dongolawi, Nobiin -ε /C_, -y /V_	extended or sometimes repetitive action (roots 126, 212, 250, 401, 442, 456, 624, 723, 801, 841, 920, 1014, 1065, 1137, 1149, 1232, 1256, 1304, 1395, 1398)
Kir-Abbaian *-a'y	essive? (root 268)
Kir-Abbaian:	
Gaam -i- (< *-i'y-), -ε- (< *-a'y-) -j- /Vr_	inchoative (roots 62, 948); essive (roots 354, 1131); extended action (roots 25, 61, 138, 472, 654, 1090, 1303, 1395); extended outcome (roots 12, 298, 1249); denominative (root 523)
Kir *-'y	extended action (root 2)
Nyimang -ei, -ai	"passive definite" (productive?); extended action (roots 99, 199, 395, 1159, 1446)
Daju *-y-	extended action (roots 181, 1325)
Nilotic:	
WNil *-y, *-c	extended action (roots 56, 171, 250, 395, 435, 490, 704, 799, 823, 859, 894, 1064, 1130, 1141, 1371, 1423); deadjective (root 89)

ENil: Maasai   intransitive
       -*iš*- (< *-iy-)
Rub: proto-Rub *-'j-   intransitive (roots 202, 1342, 1355)
                                     extended action (roots 202, 720,
                                           823, 921, 1440)

The weight of evidence here shows the early forms of this extension to have been *-a'y and *-i'y.

Still one other extension, 9, could also convey recurrent action to a verb, but a close look at its particular effects in different languages favors its reconstruction more specifically as an iterative concisive—denoting actions that are repetitively carried out, but have a restricted locus of occurrence. In early Eastern Sahelian, judging from its Rub and Kir-Abbaian consequences, this extension may have come to refer to extended action rather than, strictly speaking, iterative action. Both the Songay and Rub evidence (see the productive Rub versions of this suffix noted below) indicate a tendency for the extension to take on intransitive functions.

9. *m   (*-am)   iterative concisive

PNS *-m-   extended action (roots 865, 1185)
Koman: Uduk -*Vm*-   iterative and iterative concisive (roots
                           335, 649, 959, 1109, 1181)
Sudanic *-m   iterative concisive (root 1073?)
Northern Sudanic *-Vm   iterative concisive (root 386)
Kunama -*m*-, -*Vm*-   iterative concisive (roots 857,
                           1331); inchoative? (root 1357);
                           inceptive? (root 1569); denominative (root 1421)
Saharo-Sahelian *-Vm   durative concisive? (root 507)
Saharan: Kanuri -*am*,   iterative and iterative concisive (roots
             -*Vm*   258, 351, 617, 630, 754, 755?,
                          760, 832, 1041)
For -*m*-   iterative (roots 704, 990, 1311, 1395)
Songay -*am*, -*Vm*   iterative and iterative concisive (roots
                         326, 364, 1164, 1168, 1200,
                       1580); intensive? (root 635); intransitive? (root 131, 1506)
Maban: Maba -*Vm*-   iterative concisive (root 1119)
Kir-Abbaian:
   Gaam -*Vm*-   iterative or extended action (roots
                       1021, 1350)

Daju *-Vm-   durative concisive? (root 354)
Surmic: Me'en -*m*   extended action? (root 463)
Nilotic *-(V)m   extendative concisive (roots 25, 90,
                       177, 282, 505, 930, 1216, 1278,
                       1353)
Rub: Soo -*om*   intransitive (also *-Vm: root 1055)
     -*Vm*-   iterative concisive (root 1574)
   Ik -*Vm*-   extended action (roots 544, 1016,
                     1319, 1412); intr. (roots 48, 203,
                     620, 659, 711, 800, 1263, 1294,
                     1345, 1446)

The one recurrent fixed shape for this extension has *a as its vowel, indicating its original form to have been *-am.

One extension, 10, appears to have had the general consequence of intensifying the action of verbs in PNS:

10. *θ   (*-uθ)   intensive

PNS *-θ   intensive (roots 541?, 597?, 667)
Koman: Uduk -*Vs*, -*us*   intensive (roots 1077?, 1257, 1547?
Kunama -*š*-   intensive (roots 61, 524, 600, 647,
                       706)
Saharo-Sahelian *-θ   intensive (root 614)
Saharan: Kanuri -*Vs*   intensive (roots 647, 754, 996?, 997?,
                       1325)
Songay -*si*, -*su*   intensive (roots 149, 943, 1433)
Maban -*s*-   intensive (roots 517, 809)
Kir-Abbaian:
   Gaam*(V)s*-,-*j*- (/n__)   intensive (roots 329, 930?)
   Bertha -*θ*-, -*uθ*-   intensive (roots 1178, 1274)
   Daju *-*š**   intensive (roots 577, 1598)
   Nilotic *t̪   intensive (roots 178, 208, 1305);
                       extendative? (root 1326)
Rub: *-(e)s-   intensive (roots 356, 693)

The Uduk and Bertha evidence suggests that this extension might have begun with the shape *-uθ; but the geographical contiguity of the two and the demonstrable loanword influence of Koman languages on Bertha make it also quite possible that areal influence was at work here.

Two further intensives in PNS, 11 and 12, had in addition pluractional consequences. One of the two is rare everywhere it appears,

but its widely discernible presence in regularly corresponding shapes and with similar inferable function, of both extending and intensifying an action, make it a necessary postulation. It probably lost its productivity early in the evolution of both the Koman and the Sudanic branches of Nilo-Saharan and may now appear only in lexicalized occurrences:

11. *pʰ (*-Vpʰ)   extendative intensive

PNS *-pʰ	intensive (root 376)
Koman: Uduk -pʰ-	repeated action? (root 1463)
Sudanic *-pʰ	extended action? (root 920)
Kunama -f-, -Vf-	intensive extended action (roots 479, 685, 883); iterative (root 368); intensive (root 524)
Saharan: Kanuri -p, -ap,	intensive (roots 919?, 944, 1169?);
-w- /-v-	intensive iterative (roots 744?,
(< /Vb/)	1454)
Songay -f-	intensive repetitive action (root 452)
Kir-Abbaian: Gaam -f-	extended intensive (root 663)
Nilotic *-p	intensive (and repetitive?) (root 452)
Rub: Ik -Vf-	intensive or intensive extended action (roots 252, 1076)

The remaining intensive, affix 12, was probably both iterative and intensive in its original function:

12. *ṭ' (*-iṭ')   iterative intensive

Koman: Uduk -Vc',	iterative intensive (roots 10, 138, 856,
-ic'	1080, 1245)
Sudanic *-ṭ'	durative intensive (root 542?)
CSud *ṭ- or *ṭ'-	intensive (root 420)
Kunama -t-	intensive (root 613)
Saharan: Kanuri -as	iterative intensive (roots 61, 452, 790,
(-z- /C_V)	996?, 997?, see also *θ intensive, affix 10 above: PNS *ṭ' and *θ both > Kanuri s)
Astaboran:	
Nubian *-č, *-j /C_	intensive (root 1562)
Dongolawi -č,	intensive or iterative intensive (roots 10, 902)
-čč(i), -ij	recently productive intensive?

Kir-Abbaian:	
Gaam -j	iterative intensive (root 1104)
Bertha -Vs'-	intensive (roots 1035, 1211, 1364)
Nyimang -ḍ-	intensive (root 663?)
Nilotic *-c	iterative intensive (roots 177, 1027, 1251); iterative (root 1177)
Rub: Ik -ts'-	iterative intensive (in underlying sense of root 750?)

The Uduk and Dongolawi data argue for an original shape *-iṭ' for this suffix.

A thirteenth PNS verb extension served to denote an action in some fashion more narrowly focussed than that of the verb root alone. It can change an action of wide scope into one of more limited consequence, or it can narrow the focus of the action, allowing its conversion, for instance, to a marker of single object in Maban:

13. *ŋ (*-εŋ, *-ɔŋ)   punctive (of narrow effect ?)

Koman: Gumuz *-ŋ	punctive (root 1086); empty? (roots 11, 626)
Uduk -ŋ, -n /#nV_	punctive (roots 268, 531)
Sudanic *-ŋ	punctive (root 1528)
Kunama -Vŋ-	punctive (roots 264, 443, 628, 1571)
Saharan: Kanuri -(V)n	punctive (roots 350, 444, 751, 1149, 1160)
For -(i)ŋ-, -aŋ-	narrow locus of action? (roots 33, 69, 132, 1100, 1305, 1372, 1432, 1489)
Songay -(V)ŋ-	punctive (roots 196?, 872, 1025, 1030, 1135?, 1193, 1216, 1432, 1538)
Maban: Maba -(V)ŋ-	verb suffix of single object or single event
-(o)ŋ-	punctive (roots 825, 1012, 1402, 1517)
Astaboran: Tama -iŋ-	punctive (roots 458, 1384)
Diling -iŋ-	punctive? (root 1016)
Kir-Abbaian:	
Gaam *-ŋ-	punctive (root 1424?)
Bertha -Vŋ-, -iŋ-	punctive (roots 1135, 1166, 1190; uncertain (root 1186)
Nyimang -εŋ	narrow locus of action? (roots 621, 1055)

Daju *-(V)ŋ-	restricted locus of action; denominative (roots 13?, 988)
Nilotic *-ŋ	punctive (roots 9, 371, 462, 751)
Rub: Ik -Vŋ-	narrowed locus of action (root 105)

The corresponding vowel outcomes of this extension in For, Bertha, Tama, and Nubian (Astaboran) would seem to favor an original Sahelian shape *-iŋ for it. For earlier eras the evidence is inconclusive, although the Maba and Nyimang reflexes with mid vowels might indicate original *-εŋ/*-ɔŋ, with *-iŋ created in Sahelian by analogy to the several other extensions in *-iC.

A fourteenth extension apparently attributable to PNS is known from its reflexes in just Koman and Central Sudanic. It detransitized verbs:

14. *ļ   (*-ɛːyļ)   intransitive

Koman: Uduk -Vɗ, -iɗ	intransitive (roots 49, 92, 123, 171, 179, 200, 273, 664, 710, 831, 898, 905, 969, 1025, 1169, 1188, 1439, 1506)
CSud: ECSud *-le	passive suffix of verbs (known from Baledha and Moru-Madi; still productive)

The reconstructed shape *-ɛːyļ for this extension would fully explain both its Uduk determined shape -iɗ and its observed outcome in Central Sudanic (see Chapter 6, affix 58, and root 1512 in the Etymological Dictionary for more on the regularity of the sound shifts involved here).

One major transitivizing extension, 15, can certainly be traced back to PNS. In PNS its consonantal component had an ejective realization, as *ʈ' (see root 1490), and this outcome can be seen in the Koman branch as well. Outside Koman—and also Central Sudanic, in which the affix has not been identified—the extension is better reconstructed, however, as *ʈ. Even in Koman the shape without ejection has been recorded as an alternate form (see Uduk item in root 1521). The sound shift is irregular, but explainable as an articulatory analogizing of *ʈ' to the *-ik causative with which it coexisted in the Northern Sudanic languages. The original vowel component of the *ʈ' extension was surely also *i, and its original shape thus *-iʈ'—a shape exactly parallel in structure to the causative *-ik (affix 23 below), except for its having a voiceless ejective stop in contrast to the voiceless

unaspirated stop of *-ik. A shift in shape to *-iʈ, with its consonant now the voiceless unaspirated dental, thus would bring the two causatives into parallel manners of articulation. The occurrence of the non-ejective form as an alternate shape in one Uduk word (in root 1521) might indicate that this process began still earlier than the proto-Northern Sudanic era, but it may also reflect the influence from or the direct borrowing of the alternative form from a Northern Sudanic language.

15. *ʈ'   (*-iʈ'; > NSud *-iʈ)   causative

PNS *-ʈ'	causative (root 1490)
Koman: Uduk -ʈʰ, -ʈ'	transitive (roots 1521 [ʈʰ < [ʈ] /_#}, 922)
Northern Sudanic *-ʈ	causative (roots 105, 1482)
Kunama -d-, -Vd-, -id-	causative, transitive intensive (roots 342, 403, 505, 601, 693, 913, 1289)
Saharan: Kanuri -t-	causative of class II verbs
yitə-	causative of class I verbs
-t, -it	transitive, lexicalized (roots 468, 807, 1121, 1334, 1472, 1498, 1503, 1582)
Saharo-Sahelian *-ʈ	causative (root 1137)
Songay -di in -endi, -indi	causative (-en- < *-an /_Ci#, hence probably PNS *-an durative)
-t- (< *-d-)	causative (root 611)
Maban: Maba -d-	causative (root 1006)
Astaboran: Nara -Vt	causative (root 517)
Tama -it, -ıt	agent deverbative suffix
pre-Nubian *-t	causative (roots 403, 551, 1371, 1449)
Kir-Abbaian *-ʈ,	causative (root 592)
Gaam -(i)d	causative (roots 33, 36?, 296, 462, 584, 586, 661, 1201, 1503)
C.Jebel: Aka -d-	causative (root 1560)
Nilotic: ENil *ta-	causative (productive; examples: roots 254, 464, 664, 1212)
WNil *-ʈ	causative (roots 1211, 1372)
Rub: Ik -it-, -et-	causative (productive; examples: roots 490, 625, 659, 693, 696, 759, 1371, 1476)
Soo -t	causative (root 1263)

A second suffix, 16, which in most of its Nilo-Saharan occurrences, at least, acted as a transitivizer, can also be reconstructed for PNS. How it might have differed in function or meaning from *-it remains to be worked out:

16. *ṣ (*-iṣ)   causative

Koman:	Uduk -Vš	causative (roots 49, 812) (583); extended action? (roots 583, 1106)
	-iš	intensive? (root 480)
	Gule -s	causative (root 759?)
CSud:	Sara-Bagirmi *s-	causative (*s < CSud *s or *ṣ)
	Kunama -es-, -ṣ	causative (roots 517, 660, 1405)
	Saharo-Sahelian -ṣ	causative (root 1393)
Sah:	Bodelean *-s	causative (root 1492)
	For -Vs-	causative (root 463)
	Astaboran:	
	Nara -is- in -igis	causative (see affix 23 below for element -ig-) (but Thompson 1976 gives instead -igin)
	Tama -s	causative
	Dongolawi -ij, -c, Nobiin -j-	causative (roots 436, 1050, 1074)
	Kir-Abbaian:	
	Gaam -j-	transitive (root 1070)
	Kelo -s-	causative (root 1554)
	Molo -c- /N_	causative? (root 1580)
	Bertha -θ-	causative (roots 586, 1526)
	Daju *-is-	instrument deverbative
	Surmic: Kwegu -š	transitive (root 1211)
	Nilotic: WNil *-c	transitive (root 1134)
Rub:	Soo -Vṣ	intensive? (root 421)
	Ik -ats	intensive? extendative (roots 726, 1303)

The vowel of Uduk -iš, if a valid reflex, and Nara -is- suggest an original PNS *-iṣ for this extension, parallel again in structure to the other causatives.

The usual shape of these PNS verb extensions, judging from their particular outcomes in Nilo-Saharan languages, appears therefore to have been -VC. The widespread and repeated tendency was for -V to become a replication of the preceding stem-vowel; this pattern is represented in the listing of reflexes of the extensions by the capital letter

V. But the recurrence of cases where the vowel was not so determined, represented here in these tablings by a distinct vowel instead of V, indicates that in the beginning the choice of vowel for each extension was more limited.

The *tʰ continuative and *l iterative each evidence a three-way set of shapes, *-aC, *-iC, and *-uC. These may be, as proposed above, compoundings of the directional markers *-i, *-uh, and *-a (affixes 17-19) with the three extensions. As suggested above, the extension in *l may have originated as *-el, and the *tʰ extension as *-utʰ; but the frequency of the other three vowel outcomes make these conclusions far from certain.

The *ŋ punctive, in contrast, is asociated with three specific vowel accompaniments, *-iŋ, *-eŋ, and *-ɔŋ/*-oŋ, as well as *-ŋ and *-Vŋ. Since the shape *-iC is widely paralleled in the other extensions, it is plausible to argue that the original allomorphs of *ŋ were *-eŋ and *-ɔŋ and that instances of *-iŋ represent the operation of analogy.

The intensive extension *θ and the extendative *p have reflexes suggesting their possible early realizations as *-uθ and *-up respectively; while *ɲ extendative, *m iterative concisive, *t̪' iterative intensive, *l̪ intransitive, and *ṣ causative were probably also represented by single allomorphs, respectively, *-aɲ, *-am, *-it̪' (or *-at̪'?), *-ɛ:yl̪, and *-iṣ.

The *s progressive had two rather different early shapes, *-is and *-ɔ:s. The shape *-is appears to be the earlier form in the comparative data and is probably the original version of the extension. The seeming unmotivatedness of the vowel accompaniment of *-ɔ:s might appear to favor its originality, but the proposal above—that it derives from an underlying *-aws, which combines the two extensions 24 and 7, *-aw punctive and *-s progressive—better accounts for it.

And although the *n durative has a variety of vowel accompaniments, its one widely recurrent non-determined shape is *-an, which can therefore be proposed as its single original realization.

Verb extensions of direction in PNS

Two extensions denoting direction of action can also be reconstructed back to PNS—an itive (17) and a venitive (18).

17. *-i itive

Koman: Uduk -i		itive (example: roots 918, 1206)

CSud: PCS *-i	itive (root ending): numerous cases
Saharan: Kanuri -i	itive (roots 600, 625, 854, 1090?, 1178, 1320)
For *-i-	itive (roots 92, 704, 1383)
Songay -i	itive (roots 73, 88, 105, 185, 208, 255, 286, 353, 457, 494, 606, 622, 635, 652, 679, 757, 765, 843, 916, 939, 1025, 1035, 1040, 1048, 1049, 1070, 1080, 1256, 1297, 1301, 1306, 1329, 1331, 1401, 1405, 1490, 1491, 1517)
Maban: Maba -iy-	itive? (roots 1013?, 1369)
Astaboran:	
Nub: Diling -i-	itive? (root 1383)
Kir-Abbaian *-i	itive (root 1372)
Gaam -i-	itive (roots 27, 574, 654?, 662, 792?, [Aka], 1068?)
C.Jebel: Kelo -i	itive? (root 823)
Nilotic: Masai -i	itive (roots 635, 1261, 1350)
Rub: Nyang'i -i	motion-to suffix

18. *-uh venitive

Koman: Uduk -u'	venitive (productive; examples: roots 824, 1025, 1220)
Kunama -u- ?	verb root ending (numerous cases)
Saharan: Kanuri -u	venitive (roots 89?, 313, 314, 485, 588, 1300, 1517, 1570)
For *-u-	venitive (roots 33, 627?, 1540)
Songay -u	venitive (roots 43, 175, 176, 183, 278, 314, 335, 347, 362, 373, 385?, 402, 433, 442, 478, 493, 600, 675, 719, 729, 772, 793, 816, 820, 841, 896, 929, 968, 974, 977, 1004, 1005, 1019, 1024, 1029, 1041, 1043, 1044, 1052, 1082, 1137, 1159, 1162, 1177, 1200, 1229, 1275, 1388, 1503, 1578)
Maban: Maba -u	venitive? (root 770)
Astaboran:	
Nub: Dongolawi -u-	venitive? (roots 617, 1083)

Kir-Abbaian:		
Nyimang -u	venitive (root 208)	
Surmic: Kwegu -u	venitive? (root 1268)	
Nilotic: ENil *-u(n)	venitive (productive; examples: roots 39, 17, 490, 503, 529, 583, 652, 674, 696, 880, 930, 1011, 1191, 1213, 1228, 1320, 1336, 1372, 1472)	
SNil *-u	venitive (examples: roots 328, 770)	

A third extension, 19, like the venitive in having the structure -V unknown elsewhere among the verb derivational markers, appears originally to have connoted a diffuse direction-of-action or to have imparted a broad locus or scope to an action.

19. *-a dispunctive

Koman: Uduk -a	dispunctive (roots 42, 67, 144, 922)
CSud: PCS *-a	dispunctive
Kunama -a- ?	dispunctive? (roots 119, 316, 419, 423, 480, 576, 610, 628, 653, 826, 881, 927, 1164, 1279, 1430, 1463)
Saharan: Kanuri --a	dispunctive (roots 80, 119, 239, 302, 304, 310, 315, 328, 336, 367, 369, 404, 406, 416, 480, 505, 508, 548, 560, 600, 622, 630, 664, 710, 821, 838, 874, 935, 952, 1019, 1041, 1059, 1109, 1113, 1147, 1169, 1182, 1212, 1293, 1338, 1364, 1415, 1424?, 1454, 1483, 1516, 1524, 1578, 1582)
Songay -a	dispunctive (roots 70, 193, 232, 304, 395, 549, 580, 581, 621, 641, 695, 864, 1006, 1039, 1055, 1059, 1100?, 1284)
Maban: Maba -a-	dispunctive? (roots 210, 258, 1012, 1029, 1118, 1348, 1402, 1411)
Kir-Abbaian:	
Nyimang -a	dispunctive? (root 1526)
Daju *-a	dispunctive (root 150)

Nilotic *-a	dispunctive (roots 80, 150, 653)
Rub: Soo -a'	dispunctive (roots 643?, 1383)
Ik -a-	dispunctive? (roots 1303, 1371)

In the Kunama dictionary most verb stems are represented as having the shape CVCV-, with CVCu-, CVCi-, or CVCa- as by far the most common particular forms. Thompson's work (1989) seems also to show this stem format. Whether these final vowels derive from the direction-of-action extensions is not clear. The instances with final -u- or -i- have therefore not been noted here, although they abound among the Kunama citations in the Etymological Dictionary of Nilo-Saharan. A number of cases of final -a- in Kunama have, however, been taken account of here because the verb stems in -a- so often do seem to convey a diffuse or dispersed action. The final glottal stop of the Soo extension presumably reflects its having been anciently analogyzed to *-uh, the regular reflex of which would be *-u' were it still to occur in Rub.

One set of verb roots, the motion verbs of the structure CV and VC, widely shows unexplained variations in the roots' reconstructed vowels that, considering their meanings, might seem attributable to some kind of relict directional marking: *ṭe, *ṭo "to move toward," with a variant *ṭa seen only in Eastern Sahelian examples (root 708); *kʰi, *kʰa "to come" (root 1029); *or, *er "to come" (root 1289); *le, *lo "to go" (latter variant known only from Eastern Sahelian (root 1303); *wa, *we "to move (intr.)" (root 1372); and *ya, *yɛ "to move (intr.)," with a variant *yɔ "to go" found only in Central Sudanic (root 1472). The fact that this kind of variation in CV verb roots is restricted to verbs of motion would at least rule out other factors such as relict conjugational ablaut that would be expected to affect all CV verbs.

There is, however, another possible explanation of the alternate shapes of the motion verbs that both has semantic plausibility and fits in with the verb extension evidence developed here. It would attribute the vowel differences to the addition of either of two verb extensions of contrastive connotation, the *-aw punctive (affix 24 below) and the *-a dispunctive (affix 19 preceding). Variants of the shapes *Cɔ and *Co could be argued to reflect underlying *Caw (or *Cɛw) and *Cew respectively, composed of a stem plus the *w punctive and denoting an action of going or coming that has a particular starting point or destination. And examples of the shape *Ca could be proposed to substitute the *-a dispunctive, in place of an earlier stem vowel, to convey motion already ongoing or lacking an defined destination, such as "to go" as opposed to "to go to." Assuming a combination of these two solutions would leave the following original roots: *ṭe "to move" (root

708), *kʰi "to come" (root 1029), *ɛr "to come" (root 1289), *le "to go" (root 1303), *we "to move" (root 1372), and *yɛ "to move" (root 1472). This solution is followed for now in interpreting the materials in the Etymological Dictionary because it makes neat sense of the data. But whether it constitutes a final and complete solution of the matter remains to be seen.

Verb extensions of Sudanic and Northern Sudanic occurrence

A number of extensions of manner, though widespread in the family, are not known from Koman languages and so, on the basis of the classification developed in Chapter 4, cannot yet be traced back to PNS. Two of them, 20 and 21, appear in Central Sudanic and thus have been in use since at least the era just subsequent to PNS:

20. *k   (*-Vk)   intensive

PCS *k-	intensive/pluractive (collapses affixes 20 and 21 because PNS *k and *kʰ merged in PCS: example, root 989); affix is widely productive in CSud today
Northern Sudanic *-k	intensive (root 1038)
Kunama -(V)g-	intensive (roots 264, 426, 685, 1041, 1498)
Saharan: Kanuri -kə-	intensive (still productive)
-k-, -Vk, -ak	intensive (roots 82, 369, 650, 790?, 821, 865, 961, 1041, 1236, 1395)
For -(V)g-	intensive (roots 336, 1109)
Songay -(V)g-	intensive (roots 12, 131, 199, 237, 296, 608, 650, 802, 1025, 1043, 1078, 1285, 1365)
Astaboran:	
Nub: Dongolawi -k, -g	intensive (productive; examples: roots 587, 650, 1438, 1561)
Kir-Abbaian:	
Gaam -g-	intensive (root 975?)
Daju *-Vg-	intensive (root 926)
Nilotic *-k	intensive? (roots 506?, 1040)

The vowel component of this derivational affix remains unclear.

The second proposed Sudanic extension, 21, connoted repeated action of some kind:

21. *k^h (*-Vk^h)   iterative

PCS *k-	intensive/pluractive: see affix 20 (example: root 177)
Kunama -Vk-, -k-	repetitive action (roots 54, 287, 308, 584, 628, 634, 647, 719, 775, 802, 828, 951, 982, 983, 1043, 1044, 1113, 1148, 1185, 1387, 1498); extended action (roots 91, 606?, 634, 847, 1193, 1302, 1305)
Saharan: Kanuri -k, -ak	repetitive action (roots 254, 453, 459, 584, 622, 650, 790?, 801, 1119); extended action (roots 891, 969, 1020, 1281)
Saharan: Teda -ge	progressive
For -g-	repetitive action (roots 9?, 694, 695, 1094, 1148)
Songay -(V)k-	repetitive (roots 326, 641, 925, 1164); extended action (roots 500, 1162, 1235, 1503)
Maban: Maba -k-	marker of plural action, sometimes plural object (productive)
Astaboran:	
Tama -uk	marker of plural action
-Vk-	repetitive action (root 1044)
Nub: Dongolawi, Diling -k	repetitive (root 1236); extended action (roots 1213, 1449)
Kir-Abbaian:	
Gaam -g-	repetitive action (roots 930, 974?, 1216, 1235)
Nyimang -g-	plural actors (root 1554)
Surmic: Kwegu -k-	repetitive or extended action (root 1268)
Nilotic: Kalenjin -k-	iterative (roots 326, 506?)
Bari -ok, -Vk	extended action (roots 157, 353, 982, 1383)
Rub: Ik -Vk	extended action (root 838)

The plurality of action normally connoted by *k^h suggests that it has a common source with Nilo-Saharan *k^h plural marker of nouns (affix 63 in Chapter 7). Its vocalic component remains obscure. The consistent lack of *both* these apparently related affixes in Koman greatly strengthens the presumption of their being a development of the period after the Sudanic and Koman branches separated.

Another three verb extensions, 22-24, are known from the postulated Northern Sudanic branch of Nilo-Saharan. One of these, 22, can be understood as a new intransitive extension displacing from use the *ɨ intransitive of PNS previously addressed (affix 14). Its distribution thus explains the non-appearance of *ɨ outside Koman and Central Sudanic and in so doing provides an additional datum for the validity of Northern Sudanic.

22. *k^h (*-ak^h)   intransitive

PNS *-k^h?	intrasitive? (root 385)
Kunama -k	detransifier (roots 49, 61, 128, 137, 576, 584, 1160, 1162)
Saharan: Kanuri -k, -g-	intransitive (roots 61, 406, 885, 889, 1498)
Songay -k-, -ka	detransifier (roots 641, 1506)
Maban: Maba kV-	intransitive (see Lukas 1966)
Astaboran:	
Nara -g-	essive? (roots 123)
Dongolawi -k,	intransitive (roots 21?, 1256, 1449, 1596)
Kir-Abbaian:	
Nyimang -ag	passive indefinite
Nilotic: Kalenjin *-ak	stative
Rub: Soo -ak	intransitive
Ik -uk-	intransitive

The Songay, Nyimang, Kalenjin, and Rub outcomes suggest an original form *-ak^h for this marker of intransitive action.

A further transitivizing extension, 23, can be reconstructed back to the Northern Sudanic threshold. How the specific function or connotation of this marker might have differed from that of PNS *ʈ' (affix 15) or *ṣ (affix 16) is unclear, but all three apparently remained relatively widely productive down to recent times.

23. *k   (*-ik)   causative

Northern Sudanic *-k	causative (root 1205)
Kunama -g-	denominative transitive (roots 807, 1445)
Saharan: Kanuri -kə-	causative
-k	transitive, lexicalized (roots 133, 153, 367, 447, 588, 606, 724, 996, 1075, 1149)
For -gi	agent noun suffix? (root 9)
Songay -g-	transitive (roots 100, 916, 1365)
-igi, -ji, -irji	deverbative instrument suffixes
Astaboran:	
Nara -ig- in -igis	causative (see affix 16 above for element *-is) (according to Reinisch 1874)
-igin	causative (Thompson 1976)
Tama -k-	causative
Dongolawi, Nobiin ig	causative (root 504); denominative (root 1434)
Kir-Abbaian:	
C.Jebel: Molo -k	causative (root 759)
Bertha -h-	causative (root 1035)
Nyimang -ig-, -eg-	causative
-ɛg, -ag	agent deverbative suffix
Nilotic *-ṭ̢	causative (root 1149)

This causative was originally analogous in formation to its mates in *ṭ̢'
and *ṣ, as the evidence abundantly indicates, for its reconstructed
structure, like theirs, has the format *-iC (see affixes 15 and 16).

This extension may be the source of a proto-Sahelian agent de-
verbative suffix of scattered occurrence, still productive in Songay and
in Nyimang of Kir-Abbaian and perhaps recently so in For (see the
listings under affix 23 just above). Or, alternatively, the several par-
ticular agent noun formatives may each be a separate later derivation
from the extension in different of the Sahelian tongues. The replicabil-
ity of this process is attested also in the parallel creation of an agent
marker in Tama from another of the Nilo-Saharan causatives, *ṭ̢' (see
affix 15).

A third extension of Northern Sudanic (and possibly Sudanic)
occurrence, 24, seems often associated with some kind of narrowing
of the focus of an action, such as shifting a verb meaning from an ex-
tended or repeated action to a single or temporally limited or spacially

concentrated action. It also had denominative effect in a number of in-
stances. Similar to *ŋ (affix 13) of PNS in its scope, it too can be
called a punctive extension. It may possibly have differed from *ŋ in
more often denoting a restricted locus of an action, rather than a nar-
rowed locus of its effects. If the explanation of final vowel alternances
in certain *CV verbs of motion, discussed above, is correct, this exten-
sion may in fact date back to PNS.

24. *w   (*-aw)   punctive   (of narrow focus of action?)

Central Sudanic *-u ?	focussed action? (root 90, 476?)
Northern Sudanic *-w	narrowed focus of action (root 356)
Kunama -(a)u-	single or concentrated action (roots 10, 249, 250, 415, 846, 1095, 1521); inchoative (roots 1271, 1542); denominative (root 1179)
Saharo-Sahelian *-w	deadjective (root 1141)
Saharan: Kanuri -au,-au (-o /#CuL_#)	single action (roots 74, 153, 458 [Za-ghawa], 490, 650, 769, 946, 1075); narrowed focus of action roots 787, 988?, 1328, 1350, 1354)
Kanuri -ȯ-	verb punctiliar (Jarrett 1981)
For -o-	narrowed focus of action (roots 759, 1015?)
Songay -ow	single action (roots 80, 459); narrowed focus of action (roots 500, 1069); essive? (root 1516)
Maban -w-	focussed action (roots 258, 1006)
Astaboran:	
Tama -Vw-	narrowed focus of action (root 1417)
Nubian: Dongolawi, Nobiin -(a)u-	narrowed focus of action (roots 268, 650, 1014, 1270, 1415)
Kir-Abbaian:	
Gaam -ɔ-	intensive? (roots 654?, 1424)
Bertha *-w-	narrowed focus of action (root 99)
Nyimang *-w-	focussed action? (root 1342)
Daju *-Vɔ	narrow focus of action? (root 988)
Surmic *-w	single action (root 1076)
Nilotic: WNil *-w	single action or sometimes narrow focus of action (roots 880, 921, 1027, 1076, 1142, 1305)

ENil *-o/*-ɔ   uncertain sense (roots 61?, 100?,
                         406, 1076)
Rub: *-u (Ik -*we*- ?)   narrowed focus of action (roots 169,
                         210, 654, 751, 820, 1274?, 1342)

An original shape *-aw for this extension seems probable from the comparative evidence. A single possible instance of an underlying *w punctive can be suggested for Koman (root 413); if valid, it would indicate the existence of the extension in PNS *w. But more and better evidence is needed if this suggestion is to be sustained.

One additional verb derivational process may trace back to the Northern Sudanic stage, namely gemination of a verb-stem-final consonant to denote actions that, though carried out by a single actor, have an inherently repetitive or extended nature to them. In the Etymological Dictionary this process appears in numerous instances in Kunama and less commonly in both Dongolawi and Nobiin of the Nubian group of Eastern Sahelian, and it may possibly occur in a very few sporadic instances elsewhere in the family. On the other hand, geminated consonants are extremely rare everywhere else in the family, and where they do appear they tend to derive, and often do so even in Nubian, from the assimilatory merging of a sequence of two underlying different consonants. Moreover, both the Nile Nubian languages and Kunama have long been spoken cheek by jowl with languages of the Afroasiatic family, in which this kind of gemination can more certainly be reconstructed as ancient. The probabilities thus strongly favor the solution that this feature arose separately in the two Nilo-Saharan subgroups and may well owe its existence to the areal influence of Afroasiatic tongues.

Extensions of more restricted distribution

Two causative extensions, in *n and *d respectively, have much more limited distributions that nevertheless require explanation.

The first of these, 25, might seem to be a Sahelian innovation because it appears in two branches of Sahelian, in Maban and in languages of two subgroups of Eastern Sahelian. But in fact each of the languages concerned is spoken within one restricted region, Wadai and the immediately adjoining areas west of Dar Fur, and so areal influence must be presumed in this instance, probably stemming from Maba, the major language of recent centuries in that region.

25. *n causative

Maban: Maba *n*-   causative
         Maba *n*-   agent noun prefix
Astaboran: Tama -*n*   causative
                    -*in*   deverbative instrument
Kir-Abbaian:
    Daju: Sila -*anni*   causative

The second of the two causatives, 26, is an apparent Astaboran innovation, attested in the Nubian subgroup of Western Astaboran and in Nara.

26. *d causative

(Kunama -*d*,-*Vd*, -*id*   causative)
Astaboran: Nara *d*-   causative
              Nubian *-Vr causative (*d > PNub *r /V_)

The Kunama extension, parenthetically noted here, might be suggested to have been an adoption from its neighbor Nara, except that /d/ is also the expected and regular Kunama reflex of the old Nilo-Saharan causative in *ṱ' ~ *ṱ (affix 15 above). It is therefore apparently a chance resemblance.

Other verb extensions of still more limited distribution, of course, appear in various particular languages and in narrower subgroupings of languages within the family. Of interest to the study of those narrower groups, they do not figure in our considerations here.

Verb classes in early Nilo-Saharan

An additional, twenty-seventh, early Nilo-Saharan non-conjugational verb marker can be postulated. A prefix of the shape *i-, its presence versus its non-presence apparently marked the division of the verbs into two classes. Its original function and meaning are not certain. But most probably it originally distinguished the set of transitive verbs from the set of intransitive verbs, as Dimmendaal (1983) has argued with respect to its Nilotic outcomes and as N. Cyffer (2000) has proposed for the Saharan data. The existence of the two classes can be traced both through overt marking and through its conjugational consequences. It is apparently unknown in any form in Koman and Central Sudanic, and it may therefore reflect an innovation of the Saharo-Sahe-

lian stage or of the preceding Northern Sudanic stage in the evolution of the Nilo-Saharan family.

27. *i- verb class marker

proto-Saharan *yi-	indirectly revealed by the existence of two original verb classes, Class I with prefixed conjugational marking and Class II with suffixed markers (Class III verbs derive from earlier Class II); but also directly evident in Kanuri initial element *yi-* in the *yitə-*, causative of Kanuri Class I (Saharan Class II) verbs, versus simple *tə-* in Kanuri Class II (Saharan Class III) verbs (see affix 15 above for this causative)
Kir-Abbaian:	
Nilotic:	
Tung'a *i-, *ɪ-	initial element of one of two classes of verbs
S. Nilotic *-ɪ-	underlying initial element of one of two classes of verbs (its effects appear in the vocalization of conjugational markers; it can act as a transitivizer)
Rub *i-, *ɪ-	initial element of many verbs, lacking present-day productiveness

Thus proto-Saharo-Sahelian can be argued to have had two verb classes. Following the terminology already established for Saharan and for Nilotic, those verbs lacking the prefix *í- can be alotted to Class I, and those having the prefix can be attributed to Class II. Dimendaal's and Cyffer's comparative work strongly suggests that Class II most probably was in origin a class of transitive verbs. What clinches this conclusion is the continuing productivity in Kalenjin of Southern Nilotic of a process for forming new transitive verbs simply by adding the *í- verb class prefix to intransitive verbs (Creider and Creider 1989), in effect shifting the class of the verb from I to II.

Can this system be traced back earlier, to the proto-Northern Sudanic stage? In Kunama there are also two classes of verbs, one consisting most often of transitive verbs and the other most often of intransitives. Different fromt he situation in Kanuri, however, it is the tran-

sitive class of verbs that is prefix conjugated, while the intransitive class of verbs is suffix conjugated (Schadeberg 1981b). One possibility is that the division into two classes, one transitive and the other intransitive—the transitive class originally marked by the prefix*i-, now widely lost—goes back to the proto-Northern Sudanic language. The develop of differently allocated prefixes and suffixed conjugations in Kunama and Saharan would, in that case, be separate later developments in those two groups.

The division of verbs into two classes might explain a certain kind of seemingly unmotivated meaning shift noted in anumber of cases in the Etymological Dictionary. In these instances, verb roots have been shifted from intransitive to transitive use without the addition to the stem of any of the usual Nilo-Saharan causatives (see notes to roots 220, 314, 323, 578, 593, 601, 612, 670, 751, 828, 1004, 1007, 1016, 1188, 1235, 1245, 1386, and 1410). Might these be cases where the verb was shifted from Class I to Class II in the same fashion as is still productive today in Kalenjin? A lesser number of similarly unmediated shifts from transitive to intransitive have also been noted (roots 124, 660, 921, 1192, and 1371), and these could be instances of an opposite process, shifting the verb to Class I by deleting the *í- Class II marker. This explanation could be tested through a comparative identification of the classes to which the reflexes of particular verb roots are variously assigned in Kunama, Saharan, Rub, and Eastern and Southern Nilotic, in which languages the old class system has left still visible remnants.

Derivation by stem-internal change, reduplication, and gemination

One old Nilo-Saharan verb derivational process that, on the surface, does not seem to involve segmental affixation can also be discerned in the evidence presented in the Etymological Dictionary. Appearing only in fossil occurrences, it has the force of a verb extension with augmentative properties. The testaments of its former existence are a number of paired Nilo-Saharan verb roots differing only in stem-vowel height. Most of these match the shapes *CɛC or *CeC with *CiC (roots 121, 126, 404, 802, 805, 1259/1267, 1260, 1261, 1304, and 1344), identical in their consonants but differing in vowel height. A couple of additional apparent cases have *o/*u stem vowel alternants in a root (157 and 816). In each instance the root shape with a high vowel has a meaning in some way augmentative of or adding duration to that borne by the [-high] vowel. In all these cases, the [±high] variants were already lexicalized pairings by the relatively early stages of

Nilo-Saharan differentiation. We are dealing here, it appears, with ablaut effects of a morpheme of pre-PNS provenance, lost to segmental visibility and probably no longer productive in any form even as early as the PNS era.

In addition, reduplication and partial reduplication of verb stems to convey iterative or other pluractive senses and also, at times, intensive connotations are fairly widespread among the Nilo-Saharan languages. These processes would seem to be quite old and may well trace back to proto-Nilo-Saharan.

In several individual languages, notably in the Nubian group and possibly also in Kunama, the gemination of stem-final consonants can have similar effects on verb meaning. This process probably came into being separately at later times in the particular groups involved, however, because it is not evident in reconstructed root shapes nor does it appear to have had consequences for sound correspondences outside of those groups. Since the process was old in Afroasiatic, and both Nubian and Kunama have long been spoken next to Afroasiatic-speaking peoples, areal influences stemming from Afroasiatic are likely to have been at work in these cases.

CHAPTER 6

ASPECTS OF NILO-SAHARAN MORPHOLOGY: NOMINAL DERIVATION

Nominal-deriving affixes in early Nilo-Saharan

A very large number of noun and adjective formatives existed in proto-Nilo-Saharan (PNS), most suffixed but a few prefixed. List 6.1 provides an overall roster of these affixes.

List 6.1.   Nominal-deriving affixes

28.	*-ɛt̪'	deverbative attributive suffix
29.	*-ut^h	deverbative associative suffix
30.	*-ɔt^hɔ	deverbative complement suffix
31.	*-at^ha	deverbative attributive suffix
32.	*-eːt̪^h	attributive-associative suffix
33.	*-Vs (*-es ?)	deverbative associative suffix
34.	*-iṣ	deverbative attributive suffix
35.	*-ad	adjective suffix
36.	*-an	noun suffix
37.	*-aŋ	deverbative attributive suffix
38.	*-aɲ, *-iɲ (?)	attributive suffix
39.	*-am(a)	associative noun suffix
40.	*-al, -il	deverbative attributive suffix
41.	*-al̪	deverbative associative suffix
42.	*-ir(a), *-ur	deverbative complement suffix
43.	*-Vr	adjectival deverbative suffix
44.	*-aw	deverbative attributive suffix
45.	*-ay(i)	deverbative attributive suffix
46.	*-i'y(a)	associative-result suffix
47.	*-en(a)	modifier formative suffix
48.	*-ah	associative suffix
49.	*-ih	deverbative complement suffix
50.	*-uh	deverbative attributive suffix
51.	*-eh	deverbative attributive suffix
52.	*-Vkɔ	adjective suffix
53.	*a- (*-an /#_V)	attributive prefix

54. *ɔ- (*-ɔn /#_V?)   attributive prefix
    (*o- /[+ATR])
55. *kʰ-, kʰi-, *kʰɔ-   noun particularizing prefix
56. *ɛːyl-   animate prefix
57. *mɛ-, *-ɔmɛ   adjective-forming prefix-suffix pair

Derivational suffixes in PNS

The great majority of nominal affixes were suffixal in form and normally had the reconstructible shapes *-VC or, less often, *-VCV. The V in such suffixes often came to replicate the vowel of the stem to which a suffix attached, but probably in most cases had a particular original value not determined by the stem vowel. Besides assimilations to preceding stem vowels, analogy also seems to have led to suffixes becoming more parallel in vowel structure to other suffixes of similar function and placement. Still other changes in the vowel components of the suffixes came about probably through the substitution of different *-V number markings for especially the final vowel of the suffix, or the addition of such a vowel to a previously consonant-final suffix. This latter potentiality first emerged only at the Sahelian stage of Nilo-Saharan language history, with the innovation at that period of a variety of noun number markers of the shape *-V (see Chapter 7). In still other cases, the replacement of the first vowel of a -VC(a) suffix by one of the Nilo-Saharan nominal suffixes in *-Vh (affixes 48-51 below) might be implicated.

The suffixes probably also in the beginning had differing particular functions and meanings, and a provisional reconstruction of these has been very tentatively proposed for each suffix. It must be noted that in many cases the particular suffixes are no longer productive in particular languages; their former function and meaning is thus inferred from the comparative meanings and usages of the root, with and without the suffix, as it appears in different Nilo-Saharan languages.

In the data that follow, as was true for the verb afffixes, the numbers in parentheses refer to the particular roots in the Etymological Dictionary in which the proposed reflexes of the nominal affixes can be found.

The first of the affixes we consider here, affix 28, probably originally had the same consonant component, *t̪, as an early Nilo-Saharan causative extension, *-it̪' (affix 15). Its history seems to have been the same, too. Like the causative, only in its Koman reflexes is an ejective articulation required. Outside Koman its known occurrences all can be explained as deriving from the non-ejective dental *t̪.

28. *t̪' (*-ɛt̪'; > NSud *-ɛt̪)   deverbative attributive suffix

PNS *-t̪'	deverbative attributive (root 1428)
Koman: Uduk-(a)t̪', -Vt̪'	deverbative complement and attributive (roots 284, 944, 1037, 1335, 1369, 1420, 1470)
Kunama -(V)d-, -ed-	verbal noun suffix (influence from Nara); also complement, instrument and attributive formations (roots 190?, 202, 425, 450, 518, 609, 699, 866, 1142, 1144, 1286, 1379, 1407, 1435, 1459, 1463, 1502)
Saharo-Sahelian *-t̪	empty? (roots 515, 1513)
Saharan *-d-	adjective suffix (root 846, 939?)
Sahelian *-t̪	associative (root 1378)
For -it, -te	attributive (root 1153)
Songay -de, -di	deverbative attributive (roots 733, 881, 979, 1001, 1143, 1389, 1574); associative (root 1389)
Maba -da	deverbative attributive (roots 645, 1283, 1395)
-da(k)	verbal noun suffix (plus -k singular)
Eastern Sahelian *-t̪	deverbative attributive (root 1521);
Astaboran *- t̪	deverbative attributive (root 1582)
Nara -tV, -dV	verbal noun suffix
-te	uncertain (root 1509)
Taman *-it	attributive noun/adjective suffix (roots 952, 1330)
Tama -it, -ɪt	verbal noun suffix
Sungor -ut	verbal noun suffix
Nub: Dongolawi -id, -iːd, -d -idd(i), -Vd (Nubian *-(i)t)	deverbative complement (roots 258, 301, 440, 446, 534, 577, 813, 970, 1151, 1152, 1239, 1477, 512, 1532, 1534)
Kir-Abbaian *-t̪	empty (rot 1047)
Gaam -d, -ɬ-	deverbative attributive (noun, sometimes adjective: roots 284, 371, 395, 495, 926, 1014, 1105, 1131, 1191, 1221, 1234, 1261, 1349, 1426, 1437, 1596)
Molo -eda, -də	empty (roots 87, 1143?)

Kelo, Aka -*d*-	complement? (root 645)
Bertha -*ot*	attributive deverbative (roots 117, 1521)
Nyimang -*iḍi*	deverbative attributive (root 1395)
ṭ-	adjective-forming prefix (roots 69, 1395, 1399); for other Nyimang shift of adj. suff. to prefix position, see affix 52)
Temein -*eṭ*	noun suffix (root 1487)
-*Vṭ*	verbal noun suffix
Daju *-*id*-, *-*ed*-, *-*Vd*-	deverbative attributive (roots 109, 145, 1191, 1221, 1227?)
Nilotic: WNil *-ṭ	adjectival deverbative (roots 650, 1342)
*-(*a*)ṭ	noun suffix (roots 656, 963, 1211)
*-*iṭ	noun suffix (root 1128?)
ENil *-*Vt*-,	adjective suffix (root 190?)
*-*et*-, *-*et*-	deverbative instrument, patient, complement (still generally productive; examples: roots 65, 399, 519, 685, 758, 788, 818, 825, 841, 1191, 1212, 1262, 1264, 1328, 1371)
*-*it*-	deverbative complement (roots 42, 652, 1047, 1265)
SNil *-(a:)t (?)	deverbative attributive (roots 1300?)

In Sahelian, affix 28 apparently added an innovated application, as a verbal noun marker, as found in Maba, in Nara and Tama of Astaboran, and in Nyimang of Kir-Abbaian. Its only similar use outside Eastern Sahelian, in Kunama, can be attributed to areal influence from Nara, the long-time neighbor of Kunama. Its original shape was probably *-eṭ', accounting for the correspondence between Kunama -*ed*-, Uduk -*at*', Temein -*eṭ*', Daju *-*ed*-, and Eastern Nilotic *-*et*-, *-*et*-. Nilotic *-*a:ṭ, in view of the extensive and ancient Nilotic contacts with Koman speakers, may reflect old areal influences from the Koman reflex *-*aṭ*', but the Maba -*da* looks to be an analogical formation off original *-*eṭ*' following the pattern of the common PNS noun suffix *-*atʰa (affix 31 below), which was used as early as the Saharo-Sahelian stage as a verbal noun formative. A shape *-*iṭ*' traces to the Sahelian stage.

A long vowel component is suggested by the Southern Nilotic shape and one of the Dongolawi allomorphs (-*i:d*) of affix 28, but these outcomes are probably secondary developments as yet unexplained. In Southern Nilotic in particular, both here and in three other

cases where the consonant is a voiceless obstruent (affixes 29, 31, and 33), a long vowel appears in the Southern Nilotic reflexes that is not positively demonstrated, and often is in fact counter-indicated, elsewhere. A regular shift as some point in pre-proto-Southern Nilotic (pre-PSN), *V > *V: in suffixal /-_C# (C = [-voice][-cont]) seems thus probable.

29. *tʰ (*-utʰ)   deverbative associative suffix

Koman: Uduk -*ut* ʰ	adjective suffix (root 948)
Kunama -*ut*-	noun suffix (attributive, abstract: roots 164, 1001, 1014, 1359)
Songay -*tu*, -*tV*	adjective suffix (root 1099); attributive noun suffix (root 94)
Maban: Maba -*tu*	attributive deverbative (root 1561)
Kir-Abbaian:	
Nilotic: SNil *-*u:t*	"kind-of"? (root 875)

The single instances of affix 29 so far noted in Southern Nilotic has vowel length in this affix. But since vowel lengthening in suffixes seems a recurrent Southern Nilotic feature (see affix 28 preceding), this marker probably should be reconstructed as originally *-utʰ in shape.

30. *tʰ (*-otʰo)   deverbative complement suffix

PCS *-*to*, *-*to*	instrument/complement noun suffix
Northern Sudanic *-*otʰ*	deverbative complement (root 400)
Kunama -*ot*-	deverbative adjective suffix (roots 85, 354, 426, 666, 890, 1014 [-Vt-], 1273)
Saharan: Kanuri -*to*,-*tə*	deverbative complement (root 512, 664, 822)
For -*to*-	attribute noun suffix (root 1595)
Astaboran:	
Dongolawi -*do*	deverbative attributive (root 696)
Kir *-*otʰ*- (or *-*o:tʰ*- ?)	attribute noun suffix (root 672)
Nyimang: Dinik -*do*	noun suffix, empty (root 1425)
Nilotic: ENil *-*ot*-	noun suffix of uncertain meaning (e.g., root 922)
*-*orot*-	
SNil *-*o:t*	adjective (root 1330)

An original shape *-ɔtʰɔ must be proposed for affix 30 to account for its various outcomes.

31. *tʰ (*-atʰ) deverbative attributive suffix

Koman: Uduk -Vtʰ	noun complement (roots 1154, 1208; adjective (roots 145, 193)
PCS *-ta; cf. ECS *-te, *-ti	noun complement suffix (see also affix 30 preceding)
Kunama -at-, -Vt-	noun complement, instrument, patient, also adjective deverbative (roots 77, 105, 132, 164, 190?, 235, 278, 340, 399, 416, 426, 615, 656, 671, 861, 1010, 1012, 1107, 1155, 1156, 1243, 1250, 1369, 1197, 1577)
Saharan: Kanuri -ta, -tV	deverbative attributive/complement (roots 52, 142, 179, 501, 1253)
-(a)tə	empty (roots 638, 1038)
-ta	verbal noun suffix
For -Ca, -CV (where C duplicates final stem C)	adjective suffix (with proposed assimilation of *tʰ to final stem C; numerous examples in Etymological Dictionary)
-t, -ta	attributive, associative (roots 33?, 346, 590?)
Songay -(a)ti, -te	deverbative attributive (roots 308, 911, 1391)
Maban: Maba -t-	deverbative attributive (root 514)
Eastern Sahelian *-t	noun < noun (root 282); deverbative (root 612); noun < adjective (root 440)
Astaboran *-ti	deverbative attributive (root 1186)
Nara -ta, -ti	deverbative attributive (root 612), instrument (root 1004)
Taman *-Vt	attributive deverbative (roots 467, 503, 1429)
Nubian *-ati	attributive deverbative (roots 33, 440, 501, 504, 593, 1000, 1050, 1055, 1069, 1152, 1234, 1291, 1371, 1392, 1425, 1430, 1453)
Dongolawi -dɛ, -tɛ	noun suffix (roots 227, 501, 782)

Kir-Abbaian:	
Gaam -da	noun suffix (root 495?, 1092, 1310)
Bertha -θa	noun complement (root 202)
Nyimang -ɗa	verbal noun suffix
Dinik -ta	associative (root 1458)
Daju *-te	attributive deverbative (roots 335, 894, 1155)
Surmic: DM *-at	attributive deverbative (roots 124, 1012, 1028); empty (roots 133, 1566)
Nilotic: WNil *-(i)t	attributive, associative, complement formative (roots 14, 261, 899, 1165)
ENil *-Vt	complement deverbative (root 898); associative (roots 94, 190?)
Maa *-at- (*-ati, *-ata)	attributive (roots 103, 129, 1578)
SNil *-V:t	associative (root 713)
Rub: *-(V)t(i), *-atu	attributive (roots 88, 715, 1215, 1304, 1371, 1525)
Ik -at	adjective suffix

The original form of affix 31 was probably *-atʰa, distinguishing it from *-utʰ and *-ɔtʰɔ (affixes 29 and 30 preceding). An alternative shape *-atʰi appears in Sahelian languages and probably in Saharan (in Kanuri -atə). The front-vowel variants in the East branch of Central Sudanic (ECS), if related at all, can probably be explained as separate formations, however, derived by processes taking place earlier in that subgrouping of languages.

32. *ţʰ (*-e:ţʰ) attributive-associative suffix

Koman: Uduk -acʰ	modifier deverbative (root 1427; noun suffix: "kind-of"? (root 603)
PCS *c-	form/manifestation-of noun prefix
Northern Sudanic *-e:ţʰ	adjective suffix (root 1087)
Kunama -iš-, -Vš-	"kind-of" noun marker (root 730); noun attributive deverbative (roots 352, 772, 786)
-oš-	adjective deverbative (root 804)
Astaboran:	
Dongolawi -iccɛ	"kind-of" marker of noun (root 1057)
Kir-Abbaian:	
Daju *-ce	noun singular suffix (e.g., root 15)

Nilotic: WNil *-(i)c adjective suffix (roots 517, 1142);
"kind-of" marker of noun (root 999)

SNil *-i(:)c "kind-of" marker of noun (roots 114, 746); adjective suffix; (root 123?)

Rub *-Vc   suffix of proto-Rub *lɛɓɛc, *nɛɓɛc "two"

Ik -*uts* (< *-uc)   adjective suffix (root 1510)

The earliest attested particular outcome of this affix, 32, in proto-Northern Sudanic (PNSud), favors its reconstruction as *-e:ṭʰ, but it seems probable that the alternative shape *-i:ṭʰ may also have been in use very early. Uduk shape reflects either *-a:ṭʰ or *-ɛ:tʰ.

The Kunama adjective-deriving variety of affix 32, with its vowel *ɔ, was apparently formed by analogy to the more common Kunama adjective marker -ɔt- (see affix 30 above).

33. *s (*-Vs, *-es ?) deverbative associative (?) suffix

Koman: Uduk -*us*   adjective deverbative (roots 1077, [Gule] 1268)

       -*Vs*   deverbative instrument (roots 379, [Gule] 742?, 1483); adjective deverbative (root 1111)

PCS *s-   noun complement deverbative (postulation tentative at this point since reflexes of PCS *s and *ṣ have widely fallen together in CSud languages)

Saharan: Tibu *-eso   empty? (root 850)
     Zaghawa –*si*   attributive (root 877)
Sahelian: *-s   deverbative attributive (root 1555)
For -*s*-   "kind-of, form-of"? (root 1549)
Astaboran: Nara -*si*, -*ši*   abstract noun deverbative (productive; example root 1097)

    Dongolawi -*is(e)*,   deverbative attributive, complement
       -*iss(e)*   (roots 124, 136, 718, 979, 1392); empty? (roots 78, 143); adjective suffix (root 123)

Kir-Abbaian:
   Gaam -*s*   deverbative attributive (root 1483)
   Bertha -*Vš*-   noun/adjective suffix (roots 146, 148, 159)

Dinik –*s*-   attributive (root 1561)
Daju *-as-   empty? noun singular marker? (e.g., roots 133, 1431, 1434, 1508)
Surmic: Tirma -*ɛso* adjective deverbative (root 1561);
   Didinga -*s* empty? noun singular marker? (root 1508)
Nilotic: [Maasai -*is* adjective suffix, but in loanword only (root 706)]
   [SNil: *-V:s adjective suffix; also noun suffix (no longer productive; examples: roots 216, 284, 804, among others); LOAN (expected *-V:t or *-V:c) from undetermined source (Rub?)]

Rub *-Vs   deverbative complement, attributive, noun singular? (roots 44, 898, 996)

The original vowel component of affix 33 is unclear. The Astaboran attestation of *i probably reflects the influence of the other sibilant PNS nominalizing suffix, in *ṣ (affix 34 following), the vowel of which was surely *i. The Southern Nilotic version of this suffix lacks regular sound correspondence and so must have entered the language via borrowing, most probably from pre-proto-Rub, with which pre-PSN had very intensive, early cross-linguistic interactions. Many Southern Nilotic nouns and adjectives attest this formerly active suffix, but it appears today no longer productive anywhere in that subgroup.

34. *ṣ (*-iṣ) deverbative attributive suffix

Koman: Uduk -*Vš*, -*iš* deverbative attributive, also associative noun suffix (roots 61, 970, 1135, 1548)
PCS *ṣ-, *ṣi-   attributive deverbative prefix
Saharan: Kanuri *s*-   deverbative complement (productive)
     -*Vs*   deverbative complement? (root 200)
Astaboran: Nubian *-š- noun complement and adjective deverbative (roots 877, 1139)

Kir-Abbaian:
   Gaam -*ɛj*, -*jV*   adjective deverbative (root 630); associative (noun < noun: root 309)
   Daju *-is-   associative ("kind-of") (root 1107)
   Surmic *-š   attributive deverbative (root 1211)

35. *d (*-od ?) adjective suffix

Koman: Uduk *-Vr*	adjective suffix (roots 13?, 362?, 392?, 740, 803?)
PCS *d-	noun prefix connoting "part-of" or "characterized-by"; sometimes acts as adjective-forming prefix
Kunama *-(V)d-*	adjective suffix (roots 495, 1142, 1245, 1345)
Saharan: Kanuri *-ir-* ?	adjective suffix (root 1217?)
Rub *-(V)d, *-od-*	adjective suffix (roots 200, 294, 1336, 1415, 1505, 1516)

The original vowel component of the adjective-forming suffix, 35, is uncertain. Its full distribution has surely been obscured by the falling together in many Nilo-Saharan languages of non-initial PNS *d with *r, which itself forms the consonantal component of another old adjective-forming suffix (affix 42). Its attestations are fairly numerous in Rub, in which word-final PNS *d was preserved, and are not uncommon in Kunama, which preserved PNS *d intervocalically.

A further noun suffix, in *n, affix 36, had highly variable outcomes and different particular consequences.

36. *n (*-an) noun suffix (of unclear connotation)

PNS *-n- or *-na	pronoun suffix (root 1602)
*-Vn	instrument deverbative (root 1414)
Koman: S.Koman *-in, *-en	attributive deverbative suffix (roots 365, 1110); empty (root 684)
Uduk *-(a)n, -Vn, -un*	noun suffix (roots 1, 81, 167, 427, 871, 937, 1314, 1468, 1527)
-na	pronomial suffix (root 322)
Gule *-(a)n*	noun suffix (roots 14, 94, 1135, 1187, 1428, 1483, 1486)
PCS *n(a)-	noun complement prefix
WCS: Bongo-Bagirmi *-nV	noun suffix of uncertain meaning
Kunama *-(o)n-, -an-*	noun suffix (roots 40, 58, 555, 569, 672, 682, 697, 767, 963, 1114, 1125, 1205, 1214, 1369, 1380)
-Vn-, -in-	patient deverbative (roots 288, 298, 1014)

Kunama *-an-, -in*	deverbative complement (roots 323, 485, 608, 706?)
Saharo-Sahelian *-en-	noun suffix (roots 515, 1392)
Saharan: Kanuri *n-*	abstract noun formative
-no	deverbative complement
-an, -ana	empty (roots 465, 642, 1477)
-in, -(i)ni	empty (root 598, 897?)
Sahelian *-n	patient deverbative (root 182); "kind-of" (roots 979, 980)
Songay *-ni*	empty? (roots 1549, 1552)
-VnV, -Vn	attributive deverbative; also "kind-of" noun suffix (roots 283, 881?, 958, 1001, 1143)
Maba *-un*	deverbative patient; empty (roots 1001, 1270)
-Vn	verbal noun suffix
Astaboran:	
Nara *-VnV*	noun suffix (roots 444, 811, 851, 1213)
-ne	abstract noun formative
Tama *-an*, Sungor *-n*	noun suffix (example: root 669)
Dongolawi *-a:n, -n*	deverbative patient, complement (roots 68, 581, 626, 749, 1551)
Hill Nubian *-in*	attributive deverbative (root 1528)
Kir-Abbaian:	
Gaam *-n*	noun suffix (roots 94, 363, 1215)
-an	deverbative complement (root 1350)
-ɛn	deverbative agent (root 564)
-na, -n	pronomial suffix (roots 410, 509, 1403, 1583, 1588)
Kir *-n	noun suffix (roots 1369, 1533)
Nyimang *-an, -un*	noun suffix (examples: roots 433, 1266, 1357, 1524)
Daju *-Vn	noun suffix (roots 164, 727, 1227, 1379)
Surmic *-an, *-en	noun suffix (roots 41, 418, 1276, 1521)
*-ne	pronoun suffix (root 509)
Nilotic *-Vn	noun suffix (root 455)
WNil *-n	noun suffix (roots 390, 1215, 1244)

ENil *-Vn		attributive noun suffix (root 609)
	Bari -Vn, -in	deverbative complement (roots 73, 433)
	-an	suffix forming noun from adjective (root 932)
	Maasai -an	deverbative complement (e.g., root 1336)
SNil *-aːn, *oːn		deverbative instrument, also empty noun suffix (roots 641, 656, 940, 1353, 1477)
*-an		deverbative patient, also empty noun suffix (roots 455, 609, 835, 1163, 1318)
*-in		deverbative attributive, also empty noun suffix (roots 1262, 1474, 1555, 1558)
*-un		deverbative complement (root 131)
Rub *-an, *-ɔn, *-in		noun suffix (roots 44, 486, 835, 923, 1247, 1324)

A number of early forms of this suffix can be discerned. The shape *-an reconstructs to PNS, while *-in and apparently *-ɔn occur by the Northern Sudanic stage, and *-un appears in at least two Sahelian languages.

The status of allomorphs of 36 with long vowels, in particular their possible reconstructibility to early stages of Nilo-Saharan, remains to be determined. Southern Nilotic has long-vowel versions of both *-an and *-ɔn, but short-vowel reflexes as well, while *-aːn is attested for Dongolawi of Nubian. The Kanuri evidence supports short *a but, interestingly, long *iː and possibly long *ɔː in its respective reflexes of the three early shapes of the suffix. For Southern Nilotic, at least, there seems to be a more general tendency for alternative shapes with and without vowel length to appear when the consonantal component of the suffix is a sonorant (see also affixes 37 and 41).

37. *ŋ (*-aŋ) deverbative attributive suffix

Koman: Uduk -aŋ, -Vŋ		deverbative complement (root 945); deverbative instrument (root 783)
Kunama -iŋ-, -Vŋ-		deverbative attributive, especially forming adjectives (roots 1172, 1176, 1504)
-oŋ-		noun < noun (root 163)

Saharan: Kanuri -an,-in		noun suffix, empty? (roots 559?, 897?)
Sahelian *-aŋ		adjective suffix (root 1198)
For -aŋ, -iŋ, -Vŋ		noun suffix, sometimes attributive (roots 224, 256, 512, 531, 1129, 1320, 1364, 1376,1458, 1487, 1549, 1595, 1603)
-iŋ		verbal noun suffix in loanwords
Songay -(V)ŋ, -iŋ-		noun suffix (roots 57, 287, 881?, 1096); attributive deverbative (roots 308?, 1050, 1086)
Eastern Sahelian *-Vŋ		deverbative attributive (root 1164)
Astaboran:		
Tama -aŋ-, -(a)ŋa, -iŋ		adjective and noun deverbative attributive (roots 1262, 1395, 1558);
-Vŋ-		noun suffix, sometimes deverbative attributive (roots 465, 551, 1492)
Nubian *-Vŋ		deverbative attributive (roots 143, 433, 1060, 1090, 1369)
Kir-Abbaian *-Vŋ		noun suffix (root 1000)
Jebel *-Vŋ-		"kind of" (root 1316, 1369)
Gaam -ŋa, -ŋ		"kind-of/form-of" (roots 782, 1546); adverbial (root 767)
C. Jebel *-Vŋ		attributive (root 669); adjective deverbative (root 869)
Bertha -aŋ, -(V)ŋ		noun suffix (roots 164, 410, 792, 1101)
-aŋ, -iŋ		adjective suffix (roots 118, 160, 1555)
Nyimang -ŋ, -aŋ, -iŋ-		noun attributive deverbative, also empty? (roots 72, 1087, 1384, 1558)
-aŋ, -Vŋ		adjective deverbative (roots 289, 494); adjective (root 1146)
Temein -iŋ		deverbative instrument (root 593)
-aŋ		adjective deverbative (root 1386); empty? (root 1089)
Daju *-Vŋ		deverbative patient, complement, agent (roots 9, 13?, 307, 1386, 1418?)
*-Vŋ, *aŋ		deverbative adjective suffix (roots 752, 948, 988)
Surmic *-Vŋ		noun suffix (roots 48, 159)
Nilotic: *-Vŋ		noun < noun (root 143)
WNil *-aŋ		adjective deverbative (root 731)
*-ŋ		attributive deverbative (root 908)

ENil -Vŋ, -iŋ   attributive deverbative, noun- and adjec-
                  tive-forming (roots 149, 322, 430,
                  464, 636, 692, 932, 1063, 1395)
SNil *-ɛ:ŋ,   deverbative attributive, also empty noun
    *-Vŋ   suffix (roots 71, 159)
    *-aŋ   adjective-forming suffix (root 129)
Rub: Ik -un   agent noun deverbative (root 1976)

Two shapes for this affix, 37, can be traced, *-aŋ with PNS distribu-
tion and *-iŋ at least back to the Northern Sudanic stage. As early as
the Northern Sudanic stage, it also was apparently used to derive ad-
jectivals as well as nouns.

38. *ɲ (*-aɲ, *-iɲ?) attributive suffix (noun < noun?)

Koman: Uduk -iny,   deverbative complement, attributive,
        -any,   instrument (roots 100, 735, 851,
        -inya   1005, 1050, 1069, 1264, 1385,
                      1427); associative (noun < noun:
                      root 1003)

PCS *-ɲa   adjective suffix; sometimes noun suffix
                     (PCS example root 940)

Kunama -ɲ-   deverbative attributive
Saharan: some Kanuri (see affixes 36 and 37: PNS *ɲ and *ŋ
        -n ?   > Kanuri /n/ word-final)
For -Vɲ   deverbative attributive (roots 2, 1368);
                     adjective deverbative (root 1319)

Astaboran: Nobiin -ɲ noun suffix (roots 143, 433, 1291)
Kir-Abbaian:
    Gaam -Vɲa   deverbative attributive (root 1319)
    Nyimang *-ɲ   adjective suffix (root 1146)
    Temein *-Vɲ   noun suffix (root 1595)
    Surmic -uɲ   noun suffix (root 1125)
    Nilotic *-uɲ   deverbative attributive (root 492)
        WNil *-ɲ   associative suffix (noun < noun: roots
                     41, 681)
        ENil *-Vɲ   adjective suffix (root 231)
        *-Vɲa   associative suffix (noun < noun: root
                     1322)
        SNil *-ɲ   adjective suffix (root 1287; deverbative
                     attributive (root 670)
Rub *-Vɲ   noun suffix (roots 718, 845); deverba-
                     tive attributive (root 27)

The vowel component of this affix, 38, remains to be worked out.
Koman shows examples of both *a and *i, while Surmic and Nilotic
evince a possible shared innovation of *u in that position. The rest of
the attestations presently available are indeterminate in their indications.

39. *m (*am, *-ama)   associative noun suffix

PNS *-(V)m   "kind-of, form-of" noun formative
                     (roots 95, 179, 1548)
Koman: Uduk -m,   suffix forming noun from non-verb
        -Vm   (roots 30, 81, 1310); attributive
                     deverbative (roots 342, 365, 735,
                     1427)
CSud: PCS *mV-   noun formative (place of, belonging to
                     or characterized by)
    *-ma, *-mV   noun suffix (meaning unclear)
Northern Sudanic *-(V) attributive deverbative (root 936)
Kunama -(V)m-   complement (roots 219, 224, 360, 418,
                     732, 837, 953, 985, 1098, 1234,
                     1373, 1462)
Saharo-Sahelian *-am deverbative attributive (root 850); empty?
                     (root 900)
Saharan: Kanuri -am deverbative complement (roots 218,
        -am,   1387); deverbative result (roots
        -Vm   544, 695, 995); empty? (roots 224,
                     622, 909, 926)
    -amo, -m   "kind-of" (root 510)
    -əm, -Vm   deverbative complement; also noun <
                     adjective (roots 890, 1174, 1366)
For -Vm   deverbative attributive (roots 763, 1206);
                     empty (root 958)
Songay -(í)mì, -ìmèy deverbative complement (for -ey, see
                     affix 45; productive; examples:
                     roots 664, 1009, 1014)
    -m in -kom ˙   deverbative agent (*ko- < *kʰwa "per-
                     son," root 1369)
    -VmV   deverbative attributive (root 1051)
    - mV   deverbative complement? (root 570);
                     associative? (root 418)
    -am, -me   noun suffixes (roots 466, 612, 697,
                     1002)
Maban: Maba -Vm   noun suffix (roots 484, 531)

Astaboran:

Dongolawi -*Vm*	deverbative attributive (root 360)
Kir-Abbaian *-*Vm*	deverbative complement (root 373)
Gaam -*ma*, -*mV*	deverbative complement (root 330); noun suffix, "kind-of"? (roots 657, 1461); empty (root 224)
-*Vm*	deverbative instrument (root 1041); noun suffix, empty? (root 958); noun < pronoun (root 1215)
Bertha -*me*	noun suffix, "kind-of"? (root 1089)
Surmic *-(V)m-	deverbative attributive (root 1169, 1491)
Nilotic: *-m	noun < noun (roots 143, 1360)
WNil *-m	deverbative attributive (root 1262); noun < demonstrative (roots 322, 1244)
ENil: Bari -*me*, -*mɛ*	noun suffix, "kind-of" (root 346); noun < demonstrative (root 907)
Rub *-(e)m	attributive deverbative (roots 518, 690, 1373, 1495)

The original application of this affix, 39, was probably to form nouns from other non-verb stems, as the PNS and PCS usages and widely recurrent parallel outcomes in other Nilo-Saharan subgroups imply. Deverbative applications can be proposed to have arisen no earlier than the Northern Sudanic stage, with the similar Uduk usages emerging independently or under influence of nearby Northern Sudanic languages.

The most common vowel component of this suffix, at least from the Sudanic stage onward, was *a, suggesting an original reconstruction of this suffix as *-am(a). An alternative shape *-ame may go back as far as the Sahelian period (see Songay, Bertha, Bari, and Rub reflexes), perhaps formed under the influence of the modifier affix in *m (affix 57 below). The highly productive Kanuri agent-occupational noun suffix -*ma* probably does not belong here, but has a distinct origin, for which see root 160 in the Etymological Dictionary.

40. *l (*-al, *-il) deverbative attributive suffix (adjectival?)

PNS *-Vl	noun suffix, "kind-of"? (root 224); associative (root 1512)
Koman: Uduk -*Vl*, -*ila*	deverbative complement, attributive

	noun, and adjective suffix (roots 18, 667, 776, 783, 955, 989, 1152, 1188, 1221, 1357)
Uduk -*al*, -*ul*	deverbative attributive (roots 247, 491)
Gumuz *-il-	adjective suffix (roots 48, 171)
CSud: PCS *-lV	adjective suffix (example roots 273, 319, 641, 757)
*-lV-	adjective prefix (root 1082)
Kunama -*Vl-*	adjective suffix (root 935); noun suffix, empty (roots 834?, 875?, 1195?); deverbative attributive (roots 446, 624?, 720)
Saharan: Kanuri -*al*, -*Vl*	deverbative patient (root 495); deverbative attributive (root 920); noun suffix, empty (root 781)
For –*Vl(a)*	deverbative complement (roots 622, 695?)
Maban: Maba -*VlV-*	noun suffix, empty or "kind-of" (roots 127?, 1555)

Astaboran:

Dongolawi -*Vl*	adjectival deverbative (root 124)
-*al*, -*il*	deverbative attributive (roots 246, 826?, 995, 1603)

Kir-Abbaian:

Gaam -*al*, -*ɔl*, -*l*	deverbative attributive (roots 121, 495, 612, 947, 1358?)
Nyimang -*Vl*	adjective suffix (root 1426)
Nilotic: ENil *lo-/*lɔ-	modifier and attributive formative (all examples drawn from Bari: roots Bari: roots 129, 464, 590, 732, 869, 932, 939, 988, 1391)
Bari -*il*	deverbative attributive (root 307)
-*Vl*	noun suffix, "kind-of" or empty (roots 484, 512); attributive deverbative (root 360)
Teso -*al*	deverbative associative (root 686)
SNil *-Vl	deverbative attributive, also empty (roots 73, 108)
*-ɛːl	deverbative attributive (root 1197)
SNil: Kalenjin *-iːl	deverbative attributive (root 836); adjective deverbative (root 1152)
Rub *-Vɬ	adjective deverbative (root 146?, 164)
*-iɬ	noun suffix, empty? (root 125)

Two recurrent forms of affix 40, *-al and *-il, are widely attested.

41. *ḷ (*-aḷ) deverbative associative (?) suffix

Koman: Uduk -adʼ	associative (noun < noun) (root 702)
-Vdʼ	deverbative complement, also deverbative attributive noun and adjective suffix (roots 6, 203, 277, 1211, 1255)
CSud: PCS *l-, *-lV	noun prefix and suffix ("form-of," "characterized-by")
Kunama -el-, -Vl-	deverbative complement (roots 103, 446)
-Vl-	noun suffix, empty? (roots 834?, 875?, 1195?)
Saharan: Kanuri -Vr	deverbative instrument or attributive (root 298?)
For -al	noun suffix, "kind-of" (root 414)
-Vl	associative (noun < noun: root 622)
Maban: Maba -Vl	associative (noun < noun: root 127?)
Astaboran:	
Dongolawi -al, -il	deverbative instrument (roots 826?, 995?); deverbative agent (root 1603?)
Kir-Abbaian:	
Gaam -(a)ḷ,	noun suffix, "kind-of" (roots 155, 667, 1047, 1217); deverbative instrument (root 1008?)
-Vḷ	deverbative attributive (roots 1268?, 1558)
-aaḷ	deverbative patient (*-ah- [affix 48] plus *-aḷ ?: root 1596)
-ḷV	adjective suffix (root 677)
Kir *-Vḷ	agent deverbative (root 535)
Nilotic: SNil *-e:lʸ	adjective suffix (root 3781)
Rub *-Vḷ or *-Vl	adjective deverbative (root 146?)

The probable reconstructible shape of this suffix, 41, is *-aḷ. An additional shape *-iḷ may have been innovated in Eastern Sahelian (by analogy to the allomorph *-il of affix 40 preceding). It appears early to have dropped from use in the Kir subgroup of Kir-Abbaian.

42. *r (*-ir(a), *-ur) deverbative complement suffix

PNS *-r	associative (noun < noun) (root 1534)
Koman: Uduk -ira	deverbative result, also empty (roots 690, 730)
-Vr, -ur	deverbative agent, attributive (roots 485, 797, 878)
CSud: PCS *r-, *rV-	noun complement/attributive prefix
*-rV	attributive, also empty noun suffix (example roots 234, 1024)
Northern Sudanic *-r	associative: noun < noun (root 1485)
Kunama -Vr-	deverbative complement (roots 251, 403, 794?, 1406)
-ar-	noun suffix, "kind-of"? (root 934)
-or-	deverbative result (root 498)
Saharo-Sahelian *-r	deverbative complement (root 1335)
Saharan: Kanuri -Vr	deverbative attributive (roots 298?, 340, 926); noun, "kind-of" (root 900)
-ər	associative (noun < noun: roots 519, 1367)
Songay -(i)ri	deverbative patient
-VrV, -uru	deverbative complement (roots 26, 428, 608, 1284, 1553)
-eri	associative (noun < noun: root 355)
For -or	instrument deverbative (root 751)
Maban: Maba -r-	noun suffix (root 484)
-Vr-	deverbative instrument? (root 531)
Astaboran: Tama -Vr-	noun suffix, empty? (root 465)
Dongolawi -ir, -ar	deverbative agent (roots 359, 1392)
-Vr, -ar	associative (noun < noun: roots 513, 1129, 1227, 1369)
Nobiin -ir	associative (noun < noun: root 1234)
Diling -ur	associative (noun < noun: root 361)
Kir-Abbaian:	
Gaam -Vr	associative (noun < noun: roots 95, 217)
-ur	deverbative instrument (root 818); associative (noun < noun: root 1234)
-ər-	deverbative complement (roots 1150, 1189)
Bertha -VrV	deverbative attributive (root 6)
-Vr-	noun suffix, empty? (roots 625, 958)

Nyimang –ɛr	deverbative instrument (root 199); empty? (root 141)
Daju *-Vr, *-(a)r-	associative (noun < noun: roots 76, 555, 746, 934, 1103)
Nilotic *-aʀ, *-oʀ, *-eʀ	associative (noun < noun: root 114, 127, 145, 230, 361, 460, 563, 922, 1125)
Rub *-ɛr/*-er, *-Vr	deverbative instrument (roots 329, 1076; associative (noun < noun: roots 488, 519, 1125)
Ik -ir	deverbative result (root 1561); n. suff. (root 488)

A variety of early vowel complements can be reconstructed for this affix, 42. To PNS can be attributed the forms *-ir (or possibly *-ira) and *-ur. A further shape *-ar traces back to the Northern Sudanic, while *-ɛr is known from Sahelian languages.

A separate adjective suffix in *r, affix 43, must be distinguished from the noun suffixes in *r. Because PNS non-initial *d fell together *r in a considerable number of the Nilo-Saharan languages, some of the attestations below, notably in Gaam, Dongolawi, and Uduk among others, may actually reflect the PNS *d adjective suffix (affix 35 above). Since all of the Uduk reflexes could actually derive from *d, it is possible that the *r suffix did not come into use until the Sudanic stage, after PNS had already divided into two primary branches (see Chapter 4 for classification followed here).

43. *r (*Vr) adjectival deverbative suffix

Koman: Uduk -Vr, -or	adjective deverbative (roots 13?, 362?, 392?, 740?, 803?)
CSud: PCS *-ro, *-rV (also East-CSud *-ru)	adjective suffix (widely productive; examples roots 3, 89, 482, 590, 757, 1233, 1433)
East-CSud *r-	modifier prefix
Northern Sudanic *-Vr	adjective suffix (roots 297, 301, 1510)
Kunama -ar-, -Vr-	adjective suffix (roots 146, 348, 706, 725, 1553)
Saharan: Kanuri -Vr, -ir	adjective suffix (roots 231, 706, 742, 827, 1217)
Maban: Maba -eri	adjective suffix (root 63)
Astaboran: Dongolawi -ri	adjectival deverbative (root 450)

Dongolawi -ir Kir-Abbaian:	adverbial deadjective
Gaam -ir, -Vr	adjectival deverbative (root 138, 294, 297)
-iir	adverbial formative (root 1344)
C. Jebel *-ar, *-Vr	adjective deverbative (roots 145, 645)
Nyimang -rV	adjective formative (root 1146)
Nilotic: ENil *-Vr	adjective suffix (roots 732?, 1328?)

The original vowel of this suffix remains uncertain. At least by the Saharo-Sahelian stage the form *-ir can be reconstructed. The Central Sudanic *-ro may reflect an earlier shape *-or, possibly also visible in Kunama -ar- (PNS *o > Kunama a); but it more probably represents an analogizing of the shape *-rV to the shape of the parallel PCS adjective formative *-ko (see affix 52 below).

44. *w (*-aw) deverbative attributive suffix

Koman: Uduk -w	adjectival deverbative (roots 160, 908); noun suffix (root 767); empty? (root 1537)
Sn Koman *-aw PCS *-u	noun and adjective suffix, probably with "kind-of/form-of" connotation (no longer productive; examples: roots 410, 1276, 1292)
Kunama -aw-	noun and adjective suffix (roots 940, 1562)
Saharan *-o, *-au	deverbative attributive (roots 220, 282, 550, 1421); associative, deriving noun < noun/adjective or pronoun < demonstrative (roots 221, 410, 477, 519, 550, 792, 871, 964, 1096, 1203, 1217)
Sahelian *-aw	deverbative attributive (root 1268)
For -o, -wa	deverbative attributive (roots 165, 310, 655, 697, 698, 704, 873, 908, 1185, 1424?, 1462)
Sahelian *-w	associative (noun < noun) (root 283)
Songay -ow	deverbative attributive or complement associative (noun < noun) (roots 17, 19, 594, 945, 1063, 1089, 1392, 1477)
Maban: Maba -w-	deverbative attributive (roots 117, 458)

Astaboran: Nara -*o*   adjective deverbative (root 215)
PNub *-w   adverbial suffix (root 1309); dever-
            bative associative (root 282)
Kir-Abbaian:
    Gaam *-w   attributive (roots 363, 1275, 1423, 1509)
    Bertha *-w   adjective suffix (roots 777, 1217, 1509)
    Nyimang -*w*-, -*ua*   adjective suffix (roots 311, 1357)
        -*w*-   noun suffix (root 1595)
    Surmic *-o   deverbative instrument (root 411)
    Nilotic *-Vw-   noun suffix, "kind-of" (roots 672,
                1453)
    WNil *-w   deverbative attributive (roots 941, 1304,
                1342, 1451, 1529)
    ENil *-w   noun/adjective suffix (roots 32, 190,
                486, 1294, 1441, 1497)
    SNil *-aw   noun suffix (recently productive)
        *-wɑ(:n)   noun suffix (still productive?
                Example: root 367)
    Rub *-w/*-u   deverbative attributive (roots 192, 474,
                600, 699,917, 1142, 1303, 1304,
                1373, 1470)

45. *y   (*-ay, *-ayi)   deverbative attributive suffix

Koman: Uduk -*ay*, -*e*   deverbative product (root 435: < *-ayi;
                1462, 1463: < *-a:y)
    Opo -*e*   noun suffix (root 1001?)
CSud: PCS *-ɛ   associative noun ("characterize-by") and
                adjective suffix
Kunama -*(e)y*-   noun suffix (roots 1107, 1369); adjec-
                tive from noun (root 20)
Saharo-Sahelian *-ay   pronoun < pronoun (root 1584)
Saharan: Kanuri -*e*,   associative (noun < noun), also adjec-
        -*ay*-   tive and attributive noun deverba-
                tive suffix (1st form < *-ayi ?)
                (roots 20, 26, 28, 100, 258, 287,
                340, 482, 510?, 540, 545, 613,
                676, 897, 961, 1157)
        -*y*-   deverbative result (root 544)
    Zaghawa -*ai*   adjective suffix (root 129)
Sahelian *-ay   associative (roots 1429, 1474, 1584)
For -*e*   associative (noun < noun, adjective:
                roots 392?, 657, 718?)

Songay -*ey*   deverbative complement, attributive,
                effect/result (numerous cases)
                (roots 26, 135, 275, 437, 469,
                538, 766, 844, 847, 1123, 1202,
                1259, 1284, 1323, 1369, 1588)
    -*key*   deverbative patient (with *k*- person
                marker)
Maban *-y   associative (pronoun < demonstrative:
                roots 509, 792)
    Maba -*ai*   associative (noun < noun: roots 1564,
                1572)
Eastern Sahelian *-y   pronoun < pronoun (root 248)
Astaboran *-y   associative (pronoun < demonstrative:
                root 792)
    Tama -*ey*, -*ɛy*   deverbative attributive adjective (roots
                285, 583, 984); noun suffix (root
                1179)
    Nubian *-e   deverbative complement, attributive, in-
                strument (roots 32, 38, 118, 174,
                734, 792, 817, 925, 932, 988,
                1014, 1022, 1143, 1081, 1087,
                1125, 1221?, 1240, 1286, 1450;
                see affix 51 below)
Kir-Abbaian *-ay   associative: noun < noun (root 1598)
    Gaam -*ɛɛ*-, -*e*   deverbative attributive noun and adjec-
                tive suffix (roots 354?, 372, 677,
                844, 1179, 1215); associative
                (roots 125, 438); empty (root 1242)
    Bertha -*ɛ*, -*e*   deverbative attributive (roots 235, 358,
                1497); adjective suffix (root 212)
    Nyimang -*ei*   verbal noun suffix
    Daju *-ay-   deverbative attributive noun and adjec-
                tive suffix (roots 622, 948, 1163,
                1373, 1422)
    Surmic: Majang   deverbative attributive (adjective: root
        -*ɔ:y*   1176); instrument (root 622)
    Nilotic *-Vy   associative (noun < noun: root 786)
        WNil *-(a)y   adjectival and noun deverbative (roots
                48, 438, 1130)
        ENil *-(a)y   associative (modifier < demonstrative)
                (root 907); modifier deverbative
                (root 715); adjective suffix (root
                284)

SNil *-a:y	noun and adjective suffix (still productive? Example: root 3)
*-Vy	deverbative attributive (roots 917, 1350, 1449)
*-(e)y	associative (noun < noun, modifier < demonstrative) (roots 283, 964, 991, 1057)
Rub *-(V)y	noun suffix (root 147, 924, 1179, 1404, 1449); modifier suffix (roots 186, 905, 1332)
Ik -*ee*- /C_C	deverbative attributive (root 1391)

Throughout, an original shape *-ay(i) can be reconstructed for affix 45. On the basis of its functions in Central Sudanic and Kunama, it can be argued to have begun as a nominal suffix, added to nouns or adjectives, and this kind of function remains prominent through the rest of the family as well. From the Saharo-Sahelian stage onward, however, it not uncommonly became able also to act as a deverbative. In Eastern Sahelian it especially often seems to have taken on the aspect of an adjectival deverbative.

46. *'y (*-i'y, *-i'ya) associative-result suffix

Koman *i, *-(i)y	associative ("kind-of") (roots 57, 1057); noun deverbative (root 1597)
PCS *-i	attributive (?) noun suffix (lexicalized cases only?); modifier suffix in Moru-Mangbetu
Kunama -*i*-	associative ("characterized-by") noun, adjective suffix (roots 19, 235, 898, 1373)
Saharo-Sahelian *-i'y	adjective deverbative (root 159)
Saharan: Kanuri -*i*	adjective deverbative (roots, 344, 929); associative (noun < noun: roots 414, 513, 544, 1252, 1458, 1461)
-*iyà*	associative ("characterized-by") deverbative (root 1223)
Zaghawa –*i*	noun suffix (root 282)
For -*ya*, -*yo*	deverbative complement, patient (root 833)
-*iye*, -*ya*	adjective deverbative (roots 592, 655, 1387)

Songay -*i*	associative deverbative (root 918); deverbative result (root 421)
Maban *-'y	adjective suffix (root 1357)
Eastern Sahelian *-'y	modifier suffix (root 1333)

Astaboran:

Tama-Nubian *-i'y	noun suffix, empty? (root 762)
Tama -*i'y*	deverbative attributive (root 91, 174)
Nub: Diling -*i*	adjective deverbative? (root 1386?)
Nobiin -*i*	adjective deverbative (roots 247, 289)

Kir-Abbaian:

Jebel *-id	associative suffix ("characterized-by," "form-of") (root 942)
Gaam -*i(j)*-, -*aj*	associative ("kind-of") (roots 2, 50?, 1322); adjective deverbative (roots 480, 1191)
Bertha -*i*, -*iyu*	adjective deverbative (root 574, 1166, 1224)
Nyimang -*ia*	adjectival deverbative (root 289, 1053)
Daju *-i	adjective deverbative (root 1373)
Surmic: *-y-	noun suffix, empty? (roots 68, 1276); adjective suffix (root 62)
Zilmamu -*ui*	deverbative complement (root 1192)
Didinga -*i*	adjective deverbative (root 827)
Nilotic *-y	empty? (root 1487)
WNil *-(i)y	adjective suffix (roots 590, 1356)
ENil: Teso -*ia*, -*i*	deverbative attributive (roots 924, 1169)
SNil *-yɑ(:n)	noun and adjective suffix (roots 108, 284, 361, 410, 488, 598, 1359, 1373)
Rub *-'j	noun and adjective suffix (roots 1333, 1371, 1604)

Affix 46, like 45 preceding, appears to have begun as a noun suffix of associative meaning and, also like affix 45; gained occasional deverbative roles from the Saharo-Sahelian stage onward, and in the Sahelian tongues adjectival function as well.

47. *n (*-en, *-ena) modifier formative suffix

Koman *-(V)n, *-in, *-en	modifier suffix (roots 95, 160. 171, 677, 681, 842, 1154?, 1190, 1333)

CSud: PCS *-(a)nɛ	adverb suffix
PCS *-(ɛ)na, *-nV	adjective-forming suffix
Kunama -(i)n-, -Vn-	adjective suffix (roots 615, 1339?, 1459)
Saharan: Kanuri -(V)n-, -na	adjective suffix (roots 440, 885, 1179)
For -in	adjective suffix (root 129)
Songay -(V)ni	adjective deverbative (roots 89, 145, 440, 1064, 1476)
Astaboran:	
Nara -(e)n	adjective suffix (roots 1086, 1288)
Tama –ni, -anɛ	adjective suffix (roots 285, 847, 1049, 1333)
Dongalawi -ɛn	modifier suffix (root 278)
Nobiin -in	adjective suffix (root 220)
Kir-Abbaian:	
Gaam -ɛn, -en, -Vn	adjective suffix (roots 10, 128, 160, 263, 322, 394, 590, 677, 1034, 1086, 1191, 1271, 1395, 1478, 1490)
C. Jebel *-ɛn	adjective suffix (root 557)
Nyimang -Vn	adjective suffix (roots 1399); adverbial formative (907)
Surmic *-(ɛ)n-	adjective suffix (roots 23, 593, 1154)
Rub *-(a)n	modifier suffix (roots 91, 125, 159, 322?, 462, 759)

The original shape of this affix, 47, is likely to have been *-en(a) or *-in(a). An innovated Sahelian shape *-eni can be proposed to lie behind Songay and Tama -ni .

A set of suffixes of the form *-Vh also formed nominals early, and often more recently, in Nilo-Saharan languages. Four shapes, affixes 48-51, have been discerned, *-ah, *-ih, *-uh, and *-eh, each originally having had apparently a somewhat different meaning. The generalization of Nilo-Saharan absolutive case *-a as the final segment of all Kunama singular nouns has obscured the possible indications of the suffixes in that language, but they are visible widely elsewhere through the family.

The first of the suffixes in *-Vh, 48, would appear to have begun as a formative deriving nouns from other nouns, but in the Sahelian group and sometimes in Saharan and Koman also developing deverbative functions.

48. *-ah   associative suffix

PNS *-ah	associative (noun < noun) root 1227)
Koman: Uduk -a'	deverbative agent, complement; adjective deverbative; associative (noun < noun) (roots 375, 433, 730, 819, 899, 1042, 1057, 1143, 1388)
PCS *-a	noun suffix (instrument, "kind/form-of" possibly still productive in some languages (e.g., Lugbara example in root 641; other example root 1102)
Saharo-Sahelian *-ah	associative ("characterized-by," "form-of") (roots 626, 1088, 1399)
Saharan: Kanuri -a	attributive (sometimes deverbative, more often noun < noun, adjective < noun) (roots 275, 318, 516, 552, 575, 683, 688, 882, 1155, 1170, 1395, 1399)
Daza -a	adjective suffix (root 1358)
Ennedian *-a	deverbative agent (root 1591?)
Sahelian *-ah	associative (noun < noun: root 980); adjective deverbative (root 1018)
For -a	deverbative complement, attributive; also associative (noun < noun) (roots 87, 547, 590, 670, 715, 954, 979, 1172, 1316, 1347, 1394, 1420, 1426, 1440, 1594, 1595);
For -a	adjective suffix (roots 1198, 1357)
Songay -a	deverbative complement (roots 1?, 162, 1037, 1058, 1071, 1142, 1202, 1349)
Maban: Maba -a	deverbative instrument, patient, complement (roots 823, 897, 1353); adjective deverbative (roots 639, 1106, 1117)
Mimi -a	adjective deverbative (root 1441)
Astaboran:	
Nara -o	deverbative complement (root 757); empty (roots 1156, 1395?
Taman: Tama -a	verbal noun suffix
Kir-Abbaian *-ah	attributive deverbative (roots 133, 1008)

Gaam -*a* — associative (noun < noun: root 87, 811, 819, 851); deverbative complement, patient, attributive (roots 935, 1043, 1060, 1092, 1142, 1230, 1596)

Nyimang *-*a* — adjective suffix (roots 215, 290); noun suffix (root 1431)

Surmic: DM *-*a' — associative suffix (noun < noun: root 227); empty? (root 1435)

Nilotic:
WNil *-*a* — deverbative complement (rooot 1346)
ENil: Teso -*a* — deverbative complement (roots 823, 1500)

Rub: Soo -*a'* — adjectival deverbative; deverbative attributive (roots 905, 1392);

Ik -*a* — noun suffix (roots 17, 48, 189?, 494, 649?, 669, 978, 1371, 1439, 1494)

49. *-ih   deverbative complement suffix

Koman: Uduk -*i'* — deverbative attributive (roots 457, 1176, 1369)

PCS: some cases of *-*i* — non-productive suffixal element (see also affix 46 above); probable example: root 146

Saharan: Kanuri -*i* — deverbative complement (roots 294, 401, 558, 703?, 1012, 1053, 1161, 1344, 1394) (see also affix 51); noun < noun (root 1291)

For -*i* — deverbative complement (roots 26, 1072)

Sahelian *-*ih* — deverbative complement (root 1017)

Songay -*i* — deverbative complement, sometimes attributive (roots 23, 117, 600, 601, 660, 989, 990, 1053, 1247); deverbative instrument (roots 720, 862); noun < noun (root 45)

Astaboran:
Taman: Tama -*i* — deverbative agent, productive (see also affix 17)

Diling -*i* — adjectival deverbative (root 1386?)

Kir-Abbaian: Gaam -*i* — deverbative attributive, complement (roots 297, 480, 869, 1035)

Bertha -*i'* — adjective deverbative in loan (root 6)
Nyimang -*i* — deverbative attributive? (roots 64, 551, 1199, 1426)

Surmic: Me'en -*i* — deverbative complement? (root 1354?)
Rub: Ik -*i*- — deverbative attributive (roots 869, 1409, 1558)

50. *-uh   deverbative attributive suffix

Koman: Uduk -*u'* — attributive (adjectival forming: roots 322, 1335)

PCS: some *-*u* — adjective suffix
Kunama -*u* — adjective (root 511)
Saharan: Kanuri -*u* — deverbative attributive, sometimes complement (roots 243, 286, 304, 352, 401, 527, 797, 944, 1159, 1335, 1367)

Sahelian *-*uh* — deverbative patient (root 669)
For -*u* — deverbative attributive (roots 2, 65, 1547); associative (noun < noun: roots 40, 934, 1499, 1512, 1534)

Songay -*u* — deverbative attributive, complement (roots 148, 404, 470, 855, 1051, 1097, 1421, 1485); deverbative instrument (root 1011); empty? (roots 66, 445)

Maban: Maba -*u* — deverbative attributive (root 142); associative (noun < noun: root 1460)

Kir-Abbaian *-*uh* — deverbative instrument or attributive (root 164)

Jebel *-*uh* — deverbative attributive (root 988)
Gaam -*u* — associative (noun < noun: root 1155)
Bertha –*u* — associative (noun < noun: roots 125, 534)

Daju -*u* — deverbative attributive (root 944)
Nilotic: ENil:
Teso -*u* — associative (noun < noun: root 637)
Rub *-*uh* — noun suffix (roots 167, 501)

51. *-eh   deverbative attributive suffix

Koman: Uduk -*e'* — associative (roots 57, 950); modifier deverbative (roots 371, 576, 1422);

	deverbative attributive (roots 422, 487, 1191, 1290, 1491)
PCS *-e	deverbative attributive (root 63)
Saharan: some Kanuri	see affix 49 above (for Saharan *eh >
-i ?	i /CVC_# in Kanuri see root 24) (root 984)
Sahelian *-eh	deverbative attributive (root 1213)
For -e	deverbative attributive, complement (roots 229, 392?, 718?, 745, 925, 949, 955, 959)
Songay -e	associative ? (root 672); deverbative attributive (root 20)
Eastern Sahelian *-eh	attributive noun suffix (root 1197)
Astaboran:	
Taman: Tama -e	verbal noun suffix
-e, -ɛ	adjective suffix (roots 108, 347)
Dongolawi:	
some -ɛ ?	(see affix 45 above for alternative source of these attestations)
Kir-Abbaian:	
Gaam -ɛ, -e	noun suffix, empty? (root 561)
Nilotic:	
ENil: Teso -e	deverbative complement (root 1346)
SNil: Nandi	attributive, associative suffix (roots
-e:	798, 1264, 1320)
Rub: Soo -ɛ'	adjective suffix (root 683)

The meanings of the four suffixes of the form -Vh have been given provisional postulations on the basis of their occurrences in words where their vowel is different from the stem vowel. In a great number of instances among the Nilo-Saharan languages, however, these suffixes have simply taken on the shape *-Vh, where V replicates the vowel of the stem, and have thus fallen together in function. Instances in the Etymological Dictionary where nothing more specific than *-Vh can be proposed are the following.

48-51.   *-Vh   noun/adjective suffix

PNS *-Vh	roots 868, 1187, 1507
Koman *-V?	roots 4, 20, 121, 145, 180, 191, 323,
(Uduk -V')	331, 332, 376, 401, 403, 433, 434, 536, 600, 729, 739, 773, 817, 829, 851, 901, 910, 964,

	1037, 1069, 1155, 1210, 1333, 1448, 1470, 1490, 1499, 1546
Sudanic *-Vh	roots 544, 656, 773?
Central Sudanic *-V	root 1488
Northern Sudanic *-Vh	root 877
Saharo-Sahelian *-Vh	roots 914, 1117, 1431
Saharan: (Kanuri) *-V	roots 29, 35, 133, 230, 275, 308, 355, 358, 401, 440, 483, 510?, 517, 538, 546, 560, 597, 650, 693, 713, 730, 872, 877, 926, 1009, 1018, 1055, 1362, 1393, 1477
Sahelian *-Vh	roots 1564, 1606
For -V	roots 285, 337, 345, 596, 761, 875, 876, 889, 895, 1055, 1268?, 1401,
	1421, 1424?, 1441, 1449, 1463, 1464, 1499
Songay -V	roots 50, 110, 133, 275, 322, 563, 710, 728, 784, 834, 925, 1002, 1155, 1371, 1387, 1395
Maban: Maba -V	roots 401, 517, 652, 1013, 1129, 1202, 1454, 1560, 1574
Astaboran: Nara -V:	root 1547
Tama -V(:)	roots 17?, 160?, 524, 1288, 1440
Nubian *-V	roots 2, 790, 969, 1197, 1221?, 1415, 1574
Kir-Abbaian:	
Gaam -V	roots 50?, 128, 378, 1052, 1252, 1371, 1451
Jebel *-V	roots 10, 976
Bertha -V (?)	roots 54, 130, 831
Nyimang -V	roots 128, 1399, 1415, 1447
Daju *-V	roots 1425, 1449?
Surmic *-V?	roots 926, 1169, 1262, 1399, 1463
Nilotic *-V	roots 17?, 50, 220?, 332, 1270, 1373, 1561 (adjectival but in loanword)
Rub *-V?	roots 190, 212, 214, 224, 478, 670, 876, 1007, 1215, 1373, 1467

A possible Sudanic addition to the nominal suffixes

One nominalizing suffix, affix 52, seems not to be traceable in Koman and so may be reconstructible back to the Sudanic stage only.

52. *k adjective suffix (*-Vkɔ)

Koman: Udak –*k(o)*-	adjective suffix (roots 193, 433)
CSud: PCS *-kɔ,	adjective suffix still productive in some
*-ka, *-kV	subgroups (examples: roots 237, 755, 757)
Kunama -*k*-, -*ik*-,	adjective suffix (roots 123, 625, 725,
-*(e)g*-, -*ek*-	1162, 1166, 1400; for determi-
	nants of voicing distinctions, see
	Commentary to Table 2.10)
Saharan: Kanuri -*Vk*	modifier suffix (root 287)
For -*ga*	adjective suffix (root 1337)
Songay -*gu*, -*gV*	adjective deverbative (roots 1383, 1558)
Astaboran:	
Nara -*ko*	adjective forming suffix (productive;
	examples: roots 123, 1097, 1099,
	1273, 1483)
Tama -*Vg*	adjective suffix (root 3)
Nubian *-*k*-	adjectival deverbative (roots 842, 1386
Fadicca -*ko*	adjective suffix ("characterized by")
Kir-Abbaian:	
Gaam -*Vg*	adjectival deverbative (roots 268, 371,
	551, 578, 627, 1037, 1443)
Nyimang *ka*-, *kV*-	adjective prefix (productive; examples:
	roots 378, 1146, 1200, 1426); for
	other Nyi- mang shift of adj. suff.
	to prefix position, see affix 28
	above.
Temein –*ik*	adjective suffix (root 1018)
Dinik -*ga*, -*k*	adjective suffix (roots 1287, 1426)
Daju *-Vga, *-Vk	adjective suffix (roots 113, 1307, 1510)
Surmic *-Vk-	adjective suffix (roots 856, 1329)
Nilotic: ENil	adjective suffix (roots 272, 378, 998)
*-(u)k, *-ok	
SNil *-ke	adjectival deverbative (root 593)
Rub: Soo -*Vk*	adjective suffix (root 1448)

The balance of evidence suggests that this suffix originally contained a back vowel. It may have been articulated as *-Vkɔ. Forms in *-Vka in Nyimang and Daju, in For, and in one of the Central Sudanic versions of this marker may reflect an old allomorphic distinction or may derive from separate, parallel developments bringing *-Vkɔ into line with the more usual *-VCa shape of the other early vowel-final nominal suffixes (affixes 39, 42, 46, and 47).

Derivational prefixes in early Nilo-Saharan

Early Nilo-Saharan had four affixes that, contrary to the general pattern, were solely prefixed, as well as a modifier affix in *m which was apparently both suffixed and prefixed,

One prefix, *a-, affix 53, was of PNS provenance; a second, *ɔ-, affix 54, cannot be traced earlier than the following, Sudanic stage. Alike in having the usual surface form V-, they cannot as yet be distinguished semantically, and *ɔ- may well have arisen initially as an allomorph of *a- in environments of a rounded stem vowel. The proposed base form *a- may itself have derived, however, from a still earlier shape *an-, because an allomorph *an- is sometimes attested in cases of vowel-initial stems, at least in the Sahelian group (see Songay, Maba, and Temein citations below). Both prefixes acted as attributives, forming nominals from other nouns and from verbs. In subgroups where vowel harmony rules developed, as they did widely in Central Sudanic and Eastern Sahelian, the *ɔ- prefix tended to become *o- preceding the stem vowels [o] and [u]. Separately in For and Daju a further shift of *ɔ- (and *o-) to *u- took place in certain environments of a succeeding [+round] vowel. Generally in the Astaboran group and separately in For and in the Surmic subgroup of Kir-Abbaian, *a- also yielded an assimilated allomorph *[ɛ] before a front stem vowel (with such [ɛ] becoming [e] where vowel harmony rules required it).

53. *a- (*-an /#_V) attributive prefix

PNS *a-	associative: pronoun < pronoun (root 1601), noun < postposition (root 1310)
proto-Koman *a-	deverbative attributive (root 1470)
Koman: Uduk *a*-	deverbative attributive; also deriving noun < noun and noun < adjective, and pronoun, demonstrative forma-

	tive (roots 15, 30, 38, 81, 87, 116, 156, 163, 180, 205, 206, 213, 247, 256, 322, 337, 365, 375, 393, 422, 433, 449, 457, 532, 576, 591, 600, 602, 603, 637, 647, 689, 690, 732, 735, 741, 878, 902, 904, 940, 941, 944, 999, 1003, 1037, 1061, 1062, 1105, 1124, 1165, 1185, 1191, 1204, 1210, 1227, 1240, 1246, 1247, 1264, 1270, 1282, 1316, 1333, 1342, 1385, 1386, 1388, 1418, 1463, 1488, 1499, 1547)

Kwama *a-* — associative (roots 533, 1210, 1468)

Gule *a-* — associative (roots 62, 483, 975, 1496: > /#-yi))

Gumuz *a- — prefix of independent pronouns

Sudanic *a- — attributive prefix (roots 1287, 1442)

PCS *a- — "characteristic vowel"; deverbative attributive (sometimes still productive). Lexicalized examples (roots 41, 59, 219, 361, 387, 563, 474, 752, 1218?, 1262)

Northern Sudanic *a- — noun prefix, empty? (root 262); noun complement (root 1465); adjective forming (root 1510)

Kunama *a-* — attributive, sometimes deverbative, prefix (roots 37, 48, 100, 117, 127, 132, 164, 166, 190, 197, 235, 258, 321, 371, 383, 409, 445, 464, 792, 944, 1085, 1098, 1143, 1154, 1292, 1330, 1415, 1451)

Saharo-Sahelian *a- — attributive dverbative (root 1028)

Saharan *a- — attributive prefix, forming nouns and pronouns (roots 50, 162, 261, 379, 410, 792, 1304, 1369)

Sahelian *a- — attributive deverbative (root 1521)

For *a-* (*e-* /_C[+front]) — attributive and deverbative attributive (roots 30, 230, 256, 322, 356, 390, 401, 408, 514, 626, 1154, 1165, 1311, 1368, 1371, 1383, 1392, 1463, 1467, 1496, 1532)

Songay *n-* (see below) — associative (noun < noun: root 502); deverbative attributive (roots 1492, 1528); loss of NS initial V in Songay means that only cases of the *an- allomorph and assimilated *a- (root 1492) are preserved

Maban: Maba *a-*, *an-* — attributive and deverbative attributive (roots 179, 837, 1000, 1262, 1379, 1380, 1392, 1407, 1463)

Eastern Sahelian *a- — associative, attributive (roots 1266, 1581)

Astaboran: Nara *a-*, *e-* /[+front] — attributive (roots 952, 1225)

Western Astaboran *a- (*e- /_Vey) — attributive deverbative (root 1425, 1429)

Tama *a-* (ɛ- /[+front] — attributive (roots 132, 285, 671, 1154, 1279, 1300, 1416, 1460, 1590, 1597)

Nubian *a- (ɛ- /_Cɛ) — attributive (roots 626, 1075, 1146, 1244, 1262, 1418)

Kir-Abbaian: Jebel *a- — deverbative attributive (root 1268)

Gaam *a-* — associative (roots 371, 1395)

C.Jebel *a- — deverbative attributive (roots 383, 468)

Bertha *a-* — deverbative attributive, also associative (roots 238, 338, 483, 988, 1231, 1322); pronoun formative (roots 238, 792, 1292)

Nyimang *a-* — adjective deverbative (roots 289, 1055, 1142); adjective < noun (roots 235, 1360); attributive noun deverbative (root 580)

Temein *a-* ŋ- (/#_V) — attributive deverbative (roots 1296; 1579)

Daju *a- — attributive and deverbative attributive (roots 120, 503, 767, 1169, 1296, 1351, 1405)

Surma-Nilotic *a- — attributive deverbative (root 387)

Surmic *a- (*ɛ- /[+front]) — attributive and deverbative attributive (roots 14, 23, 301, 440, 509, 593, 1012)

Nilotic *a- — attributive, also pronomial formative; still productive attributive in WNil (roots 98, 241, 390, 424, 499,

	904, 907, 940, 964, 1130, 1395, 1425, 1451, 1467, 1468, 1597)
Maa *ai-, oi-*	attributive deverbative noun prefix (productive; source of *-i- is uncertain)
Rub *a-	attributive and deverbative attributive, also pronomial formative (roots 256, 445, 501, 767, 1096, 1179, 1114, 1243, 1244, 1247, 1403, 1408, 1440, 1604)

54. *-ɔ (*-ɔn/#_V?) (*o- /[+ATR])   attributive prefix

Koman: Opo ɔ-	empty? (root 842)
PCS *o-, *ɔ-	"characteristic vowel"; attributive and deverbative (roots 60, 234, 423, 976, 1168, 1316, 1351, 1380, 1531)
Kunama *u-* (< *o:- < *-on ?)	attributive, associative (roots 665, 1059)
Saharan: Teda, Daza *o-	associative (noun < noun: 669)
For *u-* (_C[+round])	attributive deverbative (root 1507)
Songay *-o-*	uncertain (root 502)
Astaboran: Sungor *o-*	associative (roots 72, 669)
Tama ɔ-	associative (root 356)
Dongolawi *o-*	attributive deverbative (roots 593, 1227, 1357)
Kir-Abbaian: Gaam ə-	attributive deverbative (root 1271)
Temein *o-, ɔ-*	noun prefix
Daju *u- /#_Cu	attributive (root 1167)
Surmic *o-, *ɔ-	deverbative (roots 721, 1210)
Nilotic: WNil *o-/*ɔ-	attributive (roots 48, 309, 571, 579, 1058)
Maa *ai-, oi-*	attributive deverbative (see affix 53 preceding)

The third early prefixed element was the so-called "movable k" (PNS *kʰ-), affix 55. A further discussion of this morpheme can be found in Chapter 8. In summary, the evidence presented there supports Joseph Greenberg's (1981) hypothesis that *kʰ- began its existence in pre-proto-Nilo-Saharan (pre-PNS) as some kind of article. In PNS it was still an independent morpheme, and as such it could drop out in the Koman branch without leaving behind lexicalized relicts. Only in two pronouns, where it acted as a base to which person-mark-

ing elements were attached (roots 1571 and 1574), did a relict form of it survive in Koman or in its Gumuz branch. But in *all the rest* of the family it became and remained a bound morpheme, its positioning as a prefix attesting to its originally pre-nominal syntactical locus. (For striking instances of *kʰ- root prefixation recurring widely through the family but not in Koman, see roots 163, 1290/1291, and 1357/1358. These mutually divergent paths for *kʰ- in its histories in Koman and in the remainder of family are a powerful argument for the primary division of Nilo-Saharan into coordinate Koman and Sudanic branches.)

As a prefix, *kʰ- continued to show some of the characteristics of an article in a number of its earlier and later formations among the Sudanic languages—e.g., the forms *kʰwa versus *wa in root 1369; the Kunama words *awa* and *kawa*, the first meaning "flour" and the second flour in a particular form, "porridge," in root 1451; with a parallel effect, the Eastern Sahelian root 1452, derived from root 1451 by addition of *kʰ-; and the case in root 160 of Nara *kam* "something." And it long remained productive in a variety of uses that reflected its origins as a marker of definiteness or particularity; e.g. Kanuri *kam* "person," *am* "people" (root 162). In Saharo-Sahelian languages it appears to have taken on a deverbative function (alternatively, these instances may originally derive from a separate source: see discussion below).

55. *kʰ- (*kʰi-, *kʰɔ-)   noun particularizing prefix ("stage III" article?)

PNS *kʰ-	topic (?) marker in pronouns (roots 1586, 1589)
Sudanic *kʰ-	particularizer (specific kind/form of: root 1291)
PCS *k(i)-	empty or noun instrument/complement or adjective prefix (often still productive; examples: roots 177, 180, 575, 752, 829, 939, 976, 1244, 1262, 1284, 1295, 1306, 1422)
Northern Sudanic *k(u)-	empty or "kind-of" marker (roots 1358, 1369, 1461)
Kunama *k-, ko-, ki-*	empty or "kind-of" marker (roots 163, 235, 631, 650, 767, 1322, 1379, 1380, 1389, 1451, 1474, 1509, 1549)
Saharo-Sahelian *k(i)- *k-	attributive deverbative (roots 572, 1399) particularizer ("kind-of": root 1533)
Saharan: [Kanuri *ka-, ka-, kə(n)-*]	third shape is a still productive noun-deriving prefix (roots 20, 77, 133,

139, 162, 243, 273, 275, 355,
372, 597, 797, 803, 894, 1034,
1252, 1304, 1326, 1393, 1421,
1431)

Daza-Teda *ko-	empty? (root 569)
Zahawa ke-	empty? (root 44)
Sahelian *kʰ(o)-	noun prefix, empty? (root 1496); marker of definiteness? (root 1510)
For kV-, k-, ke-	attributive, deverbative attributive, and empty noun prefix (roots 143, 198, 433, 835, 1394, 1408, 1418, 1420, 1423, 1429, 1534, 1595)
Songay kV-, ko-, ka-, ci-, ce-	attributive, particularizer, or empty prefix (roots 108, 116, 248, 275, 569, 656, 1288, 1415, 1422, 1492, 1499, 1592)
Maban: Maba kV-, ko-	associative (noun < noun); empty (roots 75, 144, 156, 167, 346, 512, 571, 1395, 1441, 1484, 1534)
Eastern Sahelian *kʰ(i)-	attributive (noun < noun: roots 163, 873, 903, 1164, 1404, 1449, 1452, 1513, 1593); deverbative attributive? (root 1449)

Astaboran:

Nara k(o)-	empty? (roots 160, 626, 1213, 1393)
Tama k(o)-, Merarit kV-	deverbative attributive (roots 1490, 1521, 1547)
Nub: Dongolawi ko-, kV-	deverbative complement, instrument; also empty? (roots 85, 374, 1425, 1487)

Kir-Abbaian:

Gaam kV-, kɔ-, kə-	empty; also deverbative attributive? (roots 819, 1344, 1345, 1418)
C.Jebel *k-	empty (roots 557, 942, 1231, 1418, 1597)
Bertha h(u)-	empty; also deverbative complement? (roots 1122, 1591)
Kir *k-	associative (noun > noun: roots 1453, 1460)
Nyimang *k(ɔ)-	particularizer, associative (roots 378, 665, 1286, 1369, 1371, 1373, 1384, 1395, 1399 (twice), 1404, 1426 (twice), 1441, 1547, 1595)

Temein k(i)-	particularizer, "kind-of" marker (root 1595); uncertain (root 1018)
Daju *k(a)-	particularizer, "kind-of" marker (roots 71, 948, 950, 1373); deverbative attributive (root 1449)
Surmic-Nilotic *k-	deverbative attributive (root 1395); empty? (root 1434)
Surmic: S.Surmic *ke-, *kV-	deverbative attributive (roots 560, 1443); "kind of" (roots 582, 764, 1465)
Nilotic *k(V)-, *ki-	empty, associative (roots 143, 762, 1128, 1266, 1428, 1453, 1474)
WNil *k-	empty; particularizer (roots 766, 1292, 1422, 1598)
ENil *k(V)-, *ke-	deverbative attributive; also empty (roots 133, 164, 307, 1128, 1371, 1379, 1380, 1391, 1431, 1443, 1470, 1509, 1557, 1558, 1563, 1597)
Bari ka-, ki-	particularizer, "kind-of" marker (roots 21, 155, 186, 305, 923, 1422)
SNil *k-, *kɪ-/*ki-, *ke-	particularizer; also empty? (roots 379, 682, 798, 1242, 1377, 1379, 1383, 1436, 1457, 1555, 1564); deverbative attributive (roots 379, 1186)
*ke:-	verbal noun prefix
Rub *k-, ku-	empty or various kinds of deverbative (roots 917, 1440, 1456, 1457)
Ik ki-	deverbative complement, also empty (roots 155, 1329, 1522)
ka-	noun-forming prefix (roots 215, 1484)
ko-, ku-	noun and adjective forming prefix (roots 1373, 1383, 1415, 1420)
Soo ka- ·	deverbative attributive (root 917)

The most generally found, and thus probably original, shape of this morpheme as a prefix was *kʰi-. A second shape *kʰo-/*kʰɔ- can be argued to be present all through Northern Sudanic; and an additional form *kʰe-, perhaps initially a variant of *kʰi- in environments of low-vowel stems, turns up widely in Saharo-Sahelian languages. Two other forms *kʰu-, restricted to Bertha and to Rub, and *kʰa-, noted in Saharan and in a geographically proximate set of Eastern Sahelian

tongues, probably arose as separate developments in the particular subgroups in which they appear, at first possibly as allomorphs of *kʰo-/*kʰɔ- in environments respectively of [+high] and [-high] vowels in attached stems.

What semantic or functional distinctions, if any, were reflected by *kʰi- and *kʰo-/*kʰɔ- remain to be satisfactorily established. It is not impossible that two originally distinct prefixal morphemes are in fact involved here, as Greenberg's discussions (1963, 1970) imply, one deriving more anciently from a regular nominal-deriving prefix and the other being the actual old stage III article. If so, their usages have become so intertwined over the history of the Nilo-Saharan family that their separate origins are now thoroughly obscured. Alternatively, and perhaps more probably, the distinct vowels could have been markers of differing distance or definiteness of reference, distinguishing two varieties of the same underlying article root.

A fourth prefix, affix 56, known only from Gumuz of Koman and the East branch of Central Sudanic, directly converts a PNS root for "body" or "torso" (root 1512) to affixal usage. That it was derived independently from the same root in the two groups seems highly improbable, and thus it is best traced back to PNS. Like the PNS intransitive extension *ḷ, this affix was apparently lacking in PNSud, among the descendant languages of which it has yet to be discovered in any form. In Central Sudanic, where it was retained, it shifted by regular PCS rules (see Chapters 2 and 3) to the shape *lɛ- (> *le- in +ATR environment) for the same sound shift history; see also Gumuz and Central Sudanic reflexes of root 1570).

56. *ɛyl- animate prefix of nouns (see root 1512)

Koman: Gumuz *il(i)-   prefixal element in nouns for parts of the body
CSud: East-CSud *lɛ-, prefix of nouns for parts of the body,
       *le-   especially in Baledha; more often
                  a suffix in body-part nouns in
                  Moru-Madi; also in one Moru-Madi
                  animal name, *(l)ewa "elephant"

One adjectival formative, affix 57, may have originated, too, as a preposed element. The occurrence of prefixed varieties of this affix in both Koman and Central Sudanic suggest that it began in pre-PNS as a prefixed element, which in PNS initially developed a suffixed version by analogy to the pattern of the rest of the modifier formatives in that language, and then subsequently, in Northern Sudanic, lost the pre-

fixed allomorph altogether and maintained thenceforward only the suffixed varieties.

57. *m (*mɛ-, *-ɔmɛ) adjective forming prefix-suffix pair

Koman: Gumuz *m-. . .-m-	adjective-forming double affixation (roots 126, 579, 590)
*-(V)m-	adjective-forming suffix (roots 48, 1448)
CSud: PCS *m(ɛ)-,	adjective-forming prefix
*-ma, *-mV	adjective-forming suffix
Kunama -im-, -um-, -om-, -(V)m-	adjective-forming suffix (roots 371, 453, 458, 734, 737, 742, 756, 843, 935, 1018, 1099, 1179, 1191, 1302, 1307, 1357, 1369, 1373, 1459)
Saharan: Kanuri -Vm, -um	adjective-forming suffix (roots 144, 307, 1210, 1358)
For -ome	adjective suffix (root 307)
Songay -Vm	adjective suffix (root 392)
Kir-Abbaian:	
Jebel: Gaam -Vma	adjective suffix (root 331)
Kir *-ama	adjective suffix (root 1287)
Nyimang -ma, -me,-me	adjective suffix (Stevenson 1982)
Surmic *-ma	adjective suffix (root 1333)
Nilotic: WNil *ma-	adjective and attributive noun prefix; productive in several languages (e.g., in Jyang example, root 60)

The primary and original form of this suffix would probably have been *mɛ-, as is attested in Central Sudanic, with *-ɔmɛ, judging from the Kunama and For reflexes, as its earliest suffixed form. The development of the forms *-(V)ma or *-ama in Central Sudanic and Kir-Abbaian may reflect the influence of a common shape of the resemblant noun suffix in *m (affix 39 above: see especially the Central Sudanic allomorphs). In Western Nilotic this adjective formative was reshifted to a prefixal locus because of a general loss in that group of the suffixal marking slot in both nominals and verbs and perhaps also because of Koman and/or Central Sudanic influences.

Derivations by tone shift and reduplication

Two old Nilo-Saharan noun derivational processes that did not involve segmental affixation appear in the evidence presented in the Etymological Dictionary.

One of these processes, converting verbs into their noun complements by tonal shift in the stem, was productive at early eras in the differentiation of the Nilo-Saharan family and continued to be sporadically productive down to recent times in several of its subgroups. A couple of very early derivations of a nominal by this process appear in the Etymological Dictionary (see the root pairs 1332 and 1333 and probably 68 and 69). Other manifestations occur in examples restricted to just one language or subgroup. An especially clear case has been identified in Uduk of Koman (root 728); a few instances appear in the For language (e.g., root 735); and the process seems to have retained a lively productivity in the Saharan language, Kanuri, down to the present.

The most common form of this shift so far identified was for a high-tone verb stem to convert to a noun characterized by mid tone or, if the mid tone had been dropped from the language, by low tone. With a low-tone verb stem, a contrary shift to high tone apparently produced the complementary noun (cf. Uduk example root 728), while a mid-tone verb probably similarly yielded a high-tone nominal (as in the instance of roots 1332/1333).

The process may in some cases have operated in the opposite direction as well, producing verbs from nouns by tone shift. Recently productive examples at least of this latter effect appear notably among the data presented here for Kanuri (e.g., root 695 among others). The direct conversion of nominals to verbs in modern Songay does not appear to require such tonal mediation. But whether or not the comparable instances noted in other Nilo-Saharan languages, such as Daju (e.g., root 13) or Kunama, for which tonal evidence is lacking or inadequate, involve tone shifting remains to be seen. A second process of probable proto-Nilo-Saharan provenance was the formation of adjectives by stem reduplication. This process remains highly productive today in Uduk of the Koman branch, but scattered evidence of its former productivity can be found in a variety of other subgroups of the family, such as Kunama (e.g., in root 1307 among others), Central Sudanic (especially Lugbara), Mimi of Maban (root 924), and Eastern Sahelian (for examples, see Gaam entry in root 1365, Bertha in root 1217, Daju in roots 882 and 1307, Jyang in roots 784 and 1304, Naath in root 1218, and Teso and Naath in root 941).

CHAPTER 7

ASPECTS OF NILO-SAHARAN MORPHOLOGY: NUMBER, CASE, AND TENSE-ASPECT

In addition to derivational morphemes of many kinds, a variety of markers of number in nouns and adjectives, of case, and of the verb conjugation can be reconstructed for the early periods of Nilo-Saharan history.

Nilo-Saharan number marking

Number marking in nouns and adjectives seems to have developed from simple to increasingly complex over the course of Nilo-Saharan history between the PNS and PSah periods, as indicated in List 7.1.

List 7.1. Nominal number markers of Nilo-Saharan

A. Proto-Nilo-Saharan number markers

58.	*-ih	noun plural	60. *-iw	noun plural
59.	*-in	collective or indefinite number	61. *-il̯	pronoun/adjective plural

B. Number markers traceable to the proto-Sudanic stage

62.	*-akʰe	noun plural	65. *-aye	adjective plural
63.	*-ɛh	noun plural	66. *-ane	adjective singular
64.	*-a	pronoun plural		

C. Number marker traceable to Northern Sudanic stage

67. *-u   pronoun singular

D. Number marker traceable to Saharo-Sahelian stage

68. *-ok   noun singulative

E. Number markers traceable to the proto-Sahelian stage

69. *-it^ha, *-it^hih   noun plural   71. *-iŋ, *-oŋ   noun singulative
70. *-iŋa, *-iŋih   noun plural   72. *-o   noun plural
(< *-ɛw ?)

F. Number markers traceable to proto-Trans-Sahel stage

73. *-a   noun singular   76. *-o   noun singular
74. *-e   noun singular   77. *-e:ṣi   noun plural
75. *-i   noun singular   (71. *-oŋo   noun plural: new
variety of affix 71)

G. Number markers traceable to proto-Eastern Sahelian

78. *-iṭ or *-iṭ^h   noun singular   80. *-di   plural
79. *-es, *-is   noun singular   81. *-(i)ɲ   noun plural

Plurals in PNS

Only four number affixes, 58-61, seem certainly to be recon-
structed back to proto-Nilo-Saharan (PNS). All of them had the for-
mat *-iC. In each case, the presence of the affixes in the Koman
branch, which has widely lost surface segmental marking of number,
can be discerned only in lexicalized forms or in reflexes of syntactically
limited occurrence. Taken together these data indicate that the singular
was unmarked in PNS nouns, with the simple stem by itself carrying
that connotation, as it still does today in Uduk of Koman.

58.   *-ih   noun plural

Koman: Uduk *i-*   plural prefix of kin terms
CSud: Moru-Madi *-i, -ɪ*   noun plural suffix
For *-i*   noun plural suffix
Songay *-y-*   in *-yoŋ, -yan* indefinite noun
plural suffixes (see affixes
59 and 71)
Maban: Maba *-i*   noun plural suffix
Astaboran: Tama *-i*   noun plural suffix (with zero
singular)
Dongolawi *-i*   noun and adjective plural suffix

Kir-Abbaian: Temein *-i*   noun plural suffix (only in com-
bination with *ki-* plural pre-
fix)
Surmic: DM *-i*   noun plural suffix (with *-a* sing-
ular)
Nilotic: WNil *-i*   noun plural suffix
SNil *-i*   noun plural suffix
Rub: Soo *-i'*   noun plural suffix

59.   *-in   noun plural (collective or indefinite?)

Koman: Uduk *-Vn*   in *gwasan* "males" (suppletive
plural; root *ǵwaθ-: see
root 427)
CSud: Balese *–ìní*   noun plural suffix
Songay *-an*   in *-yan*, indefinite noun plural
suffix (see 58 preceding)
(Gao) *-an*   plural suffix (indef. pl.)
Maban: Maba *-ini*   noun plural suffix (rare)
Mimi *-ni*   noun plural suffix
Astaboran: Tama: Merarit *-n*   noun plural suffix (with zero
singular)
Hill Nubian *-n*   noun plural suffix
Kir-Abbaian: Temein *-(V)ṇ*   noun plural suffix (only in com-
bination with *k(i)-* plural
prefix, affix 62)
-ṭiṇ   noun plural suffix (only in com-
bination with *k(i)-* plural
prefix; see Rub entries be-
low)
Surmic: DM *-in, -n, -na*   noun plural suffixes (with *-ṭ(a)*,
affix 78, and zero singulars)
Nilotic: WNil *-(i)ni*   noun plural suffix
Mabaan *-an,*
-nʌ, -na   noun plural suffix
ENil *-in*   noun plural suffix
SNil *-i:n, *-ti:n*   noun plural suffixes
[SNil *-in, *-an*   noun plural suffix: possible
LOAN < Rub]
Rub: Ik *-itin*^a   noun plural suffix (compounding
of *ṭ singular, affix 78,
with this plural suffix)

Soo -*an*, -*in*, -*tin*, -*tan*   noun plural suffixes (latter two
                                    shapes: format as Ik -*itin* ª)
Nyang'i -*an*, -*en*   noun plural suffixes

This suffix may originally have marked indefinite number, shifting later to a simple plural in proto-Sahelian. An alternative form *-*an* arose in the Sahelian group, probably via analogy to other plurals of shape *-*aC* that were extant by that period (see below). The redundant plurals in *-*iti(:)n* may have originated in Kir and spread by borrowing from Southern Nilotic to Rub, which evinces a very great Southern Nilotic influence (see also affix 78 below on this point).

60. *-iw   noun plural

Koman: Uduk -*u*   in *gi*, pl. *gu*, relative/genitive
                             morpheme (root 410) used
                             with "have," etc.

Saharan: Kanuri *-*wa*   noun plural suffix
Maban: Maba -*iu*   noun plural suffix
Eastern Sahelian *-*we*   plural suffix in plural topic first
                             and second person pro-
                             nouns
Astaboran: Tama -*u*   noun plural suffix (used with
                             zero singular marking)
Hill Nubian *-*u*   noun plural suffix
Kir-Abbaian: Daju *-*u*   noun plural suffix (rarely produc-
                             tive)
Surmic: DM -*wa*   noun plural suffix
Nilotic: ENil: Teso -*ua*   noun plural suffix

An original shape *-*iw* can be proposed for this suffix. In Saharo-Sahelian it took on an innovated extended shape *-*wa* (< *-*uwa* < *-*iwa*), seen in Kanuri, Surmic, and Nilotic reflexes, by addition, presumably, of the *-*a* plural suffix (affix 64) to original *-*iw*. Still another shape *-*we*, created by analogy to the widespread Sudanic format of plural markers, *-*VCe*, turns up as the plural suffix of two innovated Eastern Sahelian plural pronouns (Table 8.7) and could well underlie the Astaboran and Daju reflexes in -*u*.

A fourth PNS plural suffix, affix 61, long must have been limited to grammatically restricted domains. The proto-Nilo-Saharan and Kunama reflexes and one of the For usages suggest that its first function may have been to mark plurality of person, while the Central Sudanic and another For application indicates its having early become also a de-

noter of plural in adjectives. In Nubian and Eastern Nilotic, probably separately, it then became a noun plural.

61. *-il̯   pronomial or adjective plural

PNS *-*il̯*   pronoun plural suffix (root 1585)
CSud: West CSud: Kresh *l-*   adjective plural prefix
Kunama -*l-*   plural subject marker of some
                                    verbs
For -*la*   adjective plural suffix
  -*Vl-*   verb plural suffix in third person
Astaboran: Nubian *-*(i)li*   noun plural suffix
Kir-Abbaian: Nilotic:
  ENil: Maa *-*(a)ja*, *-*(a)ji*   noun and adjective plural
                                    suffix
  Lotuko -*ɲin*   noun plural suffix

This affix took on the further shape *-*al̯*(a) in the Sahelian branch, with still another form *-*al̯i* emerging in Lotuko-Maa. Lotuko then joined this plural marker to the *-*in* noun plural (affix 59) to form the shape attested today in that language.

Number markers of the proposed Sudanic branch

For the Sudanic stage, five further affixations of number had can be identified, four of them plurals. The one singular originally had only a grammatically restricted scope of action, applying just to adjectives. Thus again, as for PNS, the Sudanic number marking of nouns seems to have been limited to plurals, all but one of these suffixes built on a consonantal base like those of PNS, but formed in accordance with a new template, *-*aCe* (or in one case, *-*aCa*) rather that *-*iC*. The one exception, the plural *-*a* (affix 64), had initially only a grammatically restricted field of operation, among pronouns and as a combining element in an adjective plural suffix. For the proto-Sudanic stage, then, the evidence shows the PNS pattern to have been alive and well, with the singular still wholly unmarked in nouns and the simple stem acting as the singular noun, and with noun plurals continuing to be marked solely by suffixes of -*VC*- shape.

One of the new plural affixes had the same consonantal component, and has same broad distribution—lacking occurrence only in Koman—as the Sudanic *kʰ iterative extension (affix 21) and, as suggested in Chapter 6, is likely to have had a common origin with it:

62. *kʰ noun plural (*-akʰɛ, *-akʰe ?)

PCS *-ke-, *-ki-	plural affix of nouns (East CSud: marker of plural person in verbs)
Kunama -*ake*	noun plural suffix
-*k*-	collective and mass plural marker
Saharan: Kanuri -*wu* (< *ku)	agent-instrument plural suffix of nouns (probably *-kuh, affix plus PNS *-uh attributive noun suffix); occurs with -*ma* singular (see root 160)
For *k*-	noun plural prefix
Maban: Mimi -*ko*	plural suffix
Maba -*k*-	verb suffix of plural object
Astaboran: Nara -*ke*, -*ka*	noun plural suffixes
Tama -*ok*, -*k*, -*gɛ*, -*gu*	noun plural suffixes
Sungor -*ak*	mass plural suffix
Nubian: Fadicca -*gu*	noun plural suffix
Kir-Abbaian: Gaam -*g*	noun plural suffix
Temein -*k* , *ki*-	noun plural prefixes
-*(V)k*	noun plural suffix (only in combination with *k(i)*- plural prefix)
Daju *-ke	noun plural suffix
Sila -*ko*, -*ka*	adjective plural suffix
Surmic: DM -*ok*, -*k*, -*ka*	noun plural suffixes
Nilotic: WNil: Mabaan -*kV*, -*gV*	noun plural suffix
ENil *-ak, *-ok, *-k, *-iak	noun plural suffixes
SNil *-ɩka	plural secondary noun suffix
Rub: Ik -*ik*, -*ikw*	noun plural suffix
-*icik* (*-ikik)	collective suffix
Soo -*ek*	noun plural suffix
-*kok*	collective suffix
-*ek*, -*ak*	adjective plural suffix
Nyang'i -*ek*	noun plural suffix

The original shape of this suffix may have been *-akʰɛ, *-akʰe, as preserved in Kunama and suggested by Nara, Tama, and Nilotic re-

flexes. An alternative shape *-akʰɔ, *-akʰo may also have appeared early: note the Kanuri and Mimi reflexes.

63. *-ɛh noun plural

CSud: West CSud -*e*, -*ɛ*	noun plural suffix
Kunama -*e*	plural suffix
Astaboran: Tama -*ɛ*	noun plural suffix
Hill Nubian -*e*	noun plural suffix
Kir-Abbaian: Surmic: DM -*e*	plural suffix
Nilotic: ENil *-ɛ(ɛ)	noun plural suffix
SNil *-ɛ	noun plural suffix
Rub: Soo -*ɛ'*	noun plural suffix

This plural can be proposed to have originated as an allomorph of PNS *-ih plural (affix 58) in the environment of a minus-high stem vowel.

64. *-a pronoun plural

PCS *a-	plural prefix of plural pronouns (see Table 8.3)
Saharo-Sahelian *-a	plural suffix in third person plural pronoun (Table 8.5)
Saharan *-a	noun plural suffix (Kanuri -*á*)
Songay -*à*	noun plural suffix
Astaboran: Nara -*a*	noun plural suffix; also suffix of plural personal pronouns
Tama -*aa*	noun plural suffix
Kir-Abbaian:	
Temein -*a*	noun plural suffix (only in combination with *k(i)*- plural prefix, affix 62)
Surmic: DM -*a*	noun plural suffix
Nilotic: ENil *-a	noun plural suffix
SNil *-a	noun plural suffix

The history of this affix provides another datum for the validity of the subclassification developed in Chapter 4. Down to the proposed proto-Saharo-Sahelian (PSS) stage, it marked plural in pronouns; thereafter, in the Sahelian group, it shifted to a generally noun plural usage, although it still might operate as a pronoun pluralizer (e.g., in Nara).

65.   *y   adjective plural   (*-aye)

CSud: West CSud: Baka -*ye*   adjective plural suffix (occurring with singular -*ne*, affix 66)

Kunama -*ai*   plural suffix

Songay -*(a)wey*   definite noun plural suffix (for *-(a)w-*, see root 1369)

Kir-Abbaian: Surmic: DM *-ia   noun singular suffix

Nilotic: ENil *-ıa   noun plural suffix (varieties *-ia, *-ie, *-io)

SNil *-V:y   noun plural suffix

*-ya, *-ye:n,   noun plural suffix

*-ye:n, *-ya:n   noun plural suffixes combining *-y with plural suffixes in *-in, *-an (affix 59) (< *-ya-in and *-ya-an)

Rub: Soo -*e*   noun plural suffix

The reconstructed form of this affix, which can be proposed to have begun as a marker of plural in adjectives, was probably *-aye. The alternative shape *-ya seen in Nilotic and Surmic was likely a secondary development, formed on analogy to the *-wa plural of Saharo-Sahelian (see affix 60 above); its restriction to those two groups makes it an apparent shared invention of Surma-Nilotic. A still earlier, PNS shape *y- of this marker may form the root-initial element in PNS *yεh "they" (see root 1493 in Etymological Dictionary).

66.   *n   adjective (and pronoun?) singular   (*-ane ?)

CSud: West CSud: Baka -*ne*   adjective singular suffix (occurs with plural -*ye* , affix 65)

For *n-*   noun singular prefix (occurs with plural in *k-* , affix 62)

Maban: Maba -*n-*   verb suffix of singular object

Astaboran: Tama -*n*   noun singular suffix (with zero plural marking)

Kir-Abbaian: Daju *-ne   noun singular suffix

Nilotic: ENil *-ın,   noun singular suffixes
*-ni, *-na

Rub: Soo -*an*   noun singular suffix

Only among Sahelian languages does this suffix become a regular singular marker in nouns (see discussion above in this section). Its original shape may have been *-ane.

Northern Sudanic and Saharo-Sahelian number markers

One number affix *-u—originally, it would seem, a singular restricted to pronouns—can be traced back as yet only to the Northern Sudanic stage, while a second, a noun singulative in *k, had come into use by the Saharo-Sahelian period. Singular *-u apparently became generalized to noun plural marking from the Sahelian period onward.

67.   *-u   pronoun singular

Kunama -*u*   final element of suffixed 2nd and 3rd person singular pronomials (roots 280, 1154)

Saharan: Berti -*u-*   singular element in *su* "I" (root 1122)

For -*u*   noun singular suffix (with -*iŋa* plural, affix 71)

Songay -*u*   singular noun ending

Maban: Maba -*u*   noun singular suffix

Kir-Abbaian: Surmic: DM -*u*   noun singular suffix (with -*in* plural, affix 59)

Nilotic: ENil *-u   noun singular suffix

68.   *-ok   noun singulative

Saharan: Kanuri, Tubu *-ko   lexicalized occurrences (roots 108, 127)

Songay -*g-*   lexicalized occurrence (root 135)

Maban *-k   noun singular suffix

Astaboran: Tama -*k*   noun singular suffix (used with -*oŋ* plural, affix 70)

Kir-Abbaian *-uk/*-ok   noun singular suffix (see root 1428)

C.Jebel -*ko*, -*ke*   noun singular suffix for things normally occurring in quantity (e.g., root 163)

Dinik -*ka*   noun singular suffix (see root 665)

Daju *-k-	noun singular suffix
Surmic: DM -Vk	noun singular suffix
Nilotic: ENil:	
Maa *-ok, *-ʋk	noun singular suffix
Lotuko -ɛk	noun singular suffix
Rub *-k, *-ak, *-aak	noun singular suffix
Soo -ak, -ok	adjective singular suffix

Sahelian innovations in number marking

By all appearances, as late as the proto-Sahelian stage the regular singular in nouns continued to be unmarked, with only the plurals adding a suffix to the simple stem. The one possible exception may have been the extension of the earlier *-u pronomial singular marker to nouns. Four new suffixes do appear, with reflexes widely across the Sahelian group, including the For language, but none is a marker of everyday noun singular sense.

Two of the four were additional plurals following a new template *-ɨCa, *-iCih (affixes 69 and 70). The element *-iC- can be argued in each case to have been an older Nilo-Saharan nominal-deriving suffix, with its first vowel realized as *i as in the older plural marker pattern *-iC, to which was then added the PNS *-a or *-ih plurals (affixes 58 and 64 above). One of the two was built apparently on the PNS suffixes in *tʰ (affixes 29-31, Chapter 6), and the second similarly on the PNS suffix in *ŋ (affix 37).

A third affix, 71, proposed here to have actually been a singulative, also had *ŋ as its consonant element. Its most probable original shape *-iŋ, with vowel *i, suggests that it may have originated as a back-formation from the plural affix 70 by deletion of the plural element *-a. Alternatively, of course, affix 70 may simply have derived from the singulative, 71, by addition of the *-a plural.

However, an alternate shape for affix 70, *-oŋo, appears in both Songay and some Eastern Sahelian tongues. This shape can be argued to have arisen through adding the *-o plural marker (72) rather than *-a (64). Its corresponding singular, *-oŋ, is restricted just to Eastern Nilotic, providing additional support for the idea that the singulatives in *ŋ arose by back-formation from the plurals.

The fourth Sahelian innovation, plural affix 72, has the surface shape *-o in the available data, but may derive from an underlying -VC format, perhaps *-ɛw. If so, this affix would probably have originated as an allomorph of PNS *-iw in low-stem-vowel environments.

69. *tʰ noun plural (*-itʰa, *-itʰih)

For -ta, -ti; -ta in -inta	noun plural suffix (for -n- in -nta, see affix 71 below)
Maban: Maba -(e)tu	noun and adjective plural suffix
Masalit -ta	noun plural suffix in loanwords; also in pronoun "who?" (root 509)
Astaboran: Nara -t, -tta	noun plural suffix
Midob, Birgid -ti	noun plural suffix
Kir-Abbaian: Daju *-ta, *-ti	noun plural suffix (mostly no longer productive)
Surmic: DM -ti, -ta, -ɛt	noun plural suffix (usually with zero or *n singular, affix 66)
Nilotic: ENil *-it(i)(e), *-Vt	noun plural suffix
Rub: Soo -it, -ut, -ot, -tiθ	noun plural suffixes (source of *-θ may be ESah singular suffix in *s, affix 79 below; it does not correspond to the *ṣ plural, affix 77)
Nyang'i -ot	noun plural suffix

70. *ŋ noun plural (*-iŋa, *-iŋih)

For -(i)ŋa	noun plural suffix
Songay -oŋo	noun plural suffix in ɲǎ, pl. ɲóŋó "mother"
-oŋ in -yoŋ	indefinite noun plural suffix (for -y- see affix 58)
Maban: Maba -(i)ɲi (< *-iŋi)	noun plural suffix
Astaboran:	
Tama -(V)ŋ, -oŋ, -aŋ	noun plural suffix (with a variety of singulars)
Merarit -aŋ	noun plural suffix
-iŋ	collective suffix
Kir-Abbaian:	
Daju *-(V)ŋge	noun plural suffix
Nilotic: ENil: Kuku -tŋ	noun plural suffix (isolated occurrence (?) in ENil)

71. *ŋ noun singular (singulative ?) (*-iŋ ?)

For -ŋ; also -in- in -inta plural	noun singular suffix (see affix 69 for pl. element -ta)
Maban: Maba -ŋ	noun singular suffix
Astaboran: Tama -iŋ , -ŋ	noun singular suffix
Merarit -aŋ, -iŋ	noun singular suffix
Kir-Abbaian: Nilotic: ENil *-oŋ (Maa *-ŋo)	noun singulative suffix

72. *-o noun plural or collective (*-ew ?)

For -o	final element in syntactically plural nouns (roots 1474, 1488)
Kir-Abbaian: Nilotic: ENil *-o	noun plural suffix
Rub: Soo -o	noun plural suffix

Trans-Sahel number markers: new patterns of affixation

At the Trans-Sahel stage, however, a major restructuring of number marking in nouns appears to have taken place. Four new suffixes, sharply breaking the mold by having the shape *-V, for the first time brought overt regular marking of noun singulars into Nilo-Saharan grammar. Unparalleled in form as well as function elsewhere in Nilo-Saharan, they constitute a strong body of innovatory evidence supporting the validity of Trans-Sahel as a genetic unit within Sahelian.

73. *-a noun singular

Songay -a	singular noun ending
Maban: Maba -a	noun singular suffix
Astaboran: Nara -a	noun singular suffix (used with -ta plural, affix 69)
Tama -a	noun singular suffix (used with -iny plural, affix 78)
Kir-Abbaian: Daju *-a	noun singular suffix
Surmic: DM -a	noun singular suffix (with -i, -ok, -ia plurals, affixes 81, 62, and 65)
Nilotic: ENil *-a	noun singular suffix

74. *-e noun singular

Songay -e	singular noun ending
Maban: Maba -e	noun singular suffix
Astaboran: Nara -e	noun singular suffix (with -ta plural, affix 69)
Kir-Abbaian: Daju *-e	noun singular; generalized final V in all *-VCV suffixes
Nilotic: ENil *-e	noun singular suffix

75. *-i noun singular

Songay -i	singular noun ending
Maban: Maba -i	noun singular suffix (rare)
Astaboran: Nara -i	noun singular suffix (with -a plural, affix 64)
Tama -i	noun singular suffix (with -Vŋ plural, affix 70)
Kir-Abbaian: Temein i-	noun singular prefix (with ki- plural, affix 62)
Surmic: DM -i	noun singular suffix (with *-k plural, affix 62)

76. *-o noun singular

Maban: Maba -o	noun singular suffix
Astaboran: Nara -o	noun singular suffix (with -to, -ta plurals, affix 69)
Merarit -ɔ	noun singular suffix (with -aŋ plural, affix 70)
Kir-Abbaian: Nilotic: ENil *-o	noun singular suffix

One further number suffix, a plural containing the PNS consonant *ṣ, turns up only among languages of the Maban and Eastern Sahelian subgroups of Sahelian. It may have originated as a plural of adjectives, as it still is today in Southern Nilotic. This suffix can be argued to have arisen from a combining of the *-Vṣ noun-deriving suffix (affix 34 in Chapter 6) with the *-ih plural (affix 58).

77. *-e:și noun plural

Maban: Maba -*esi*	noun plural suffix
Kir-Abbaian:	
Nilotic: ENil *-(i)ci	noun plural suffix
Nilotic: SNil *-e:c	adjective plural suffix
[S.Nil *-V:s,	noun plural suffix: LOAN < lan-
*-V:sya	guage where PNS *ș > *s]

Number markers limited to Eastern Sahelian

Four additional noun suffixes of number can be reconstructed to proto-Eastern Sahelian (PESah), but as yet no farther back.

78. *-iṭ or *-iṭʰ   noun singular

Astaboran: Tama -*(i)t, -ot*	noun singular suffix (with vari-ous plural markers)
Sungor -*ti, -Vt*	noun singular suffix
Merarit -*it, -t*	noun singular suffix
Hill Nubian -*tu, -to, -ti*	noun singular suffix
Kir-Abbaian: Gaam -*d*	noun singular suffix (usually with *kʰ plural, affix 62)
Temein -*iṭ*	noun singular suffix
-*ṭiŋ*	noun plural suffix (singular base *-ṭ plus *-in plural, affix 59; only in combination with -*k(i)*- plural, affix 62)
Daju *-te	noun singular suffix
Surmic: DM -*iṭ, -ṭ(a)*	noun singular suffix (with *-(V)n and *-a plurals, affixes 59 and 64)
Nilotic: WNil: Mabaan	
-*ṭʌ, -ṭa*	noun singular suffix
ENil *-(V)t(i)	noun singular suffix
SNil *-ıta	singular marker of secondary noun forms
*-ti:n	noun plural suffix (singular base plus *-in plural, affix 59)
Rub: Ik -*at*	noun singulative/singular suffix
-*itin*	noun plural suffix (singular base plus *-in plural of affix 59)

Soo -*at*	noun singulative and singular suffix
-*ɔt, -ut, -t*	noun singular suffix
-*tin, -tan*	noun plural suffixes (singular base plus *-in, *-an plural, affix 59)
Nyang'i -*at*	noun singular suffix

An innovated plural, *-iṭʰin, derived from this singular marker by addition of the PNS plural *-in (affix 59), is attested in Temein, Nilotic, and Rub reflexes. It probably originated in the Kir subgroup and passed by later areal spread from early Southern Nilotic to proto-Rub.

79. *-es, *-is noun singular (singulative?)

Kir-Abbaian: Temein -*is*	noun singular suffix (with zero plural)
Daju *-se	noun singular suffix (rarely productive?)
Liguri -*is*	noun singulative suffix
Surmic: DM -*ði*	noun singular suffix
Nilotic: WNil:	
Mabaan -*ṭV*	noun singular suffix (PNS *s > Mabaan /ṭ/)
Rub: Soo -*eθ, -aθ*	noun singular suffix (rare)

80. *-di plural

Astaboran:	
Nub: Dongolawi -*ri*	noun plural suffix (rare)
Fadicca -*ri*	noun plural suffix
Kir-Abbaian:	
Nilotic: ENil: Teso *-r-	noun plural suffix
Maasai -*ra*	plural suffix in kin terms
WNil: Jyang -*(i)r(a)*	noun plural suffix (rare)
Rub: Soo -*di*	adjective plural suffix

81. *-iɲ   noun plural

Astaboran:	
Tama -*iny, -ny, -(V)nyɛ*	noun plural suffix (with variety of singulars)

Kir-Abbaian:
Daju *-in   noun plural suffix (Shatt, Liguri
                   adjective plural suffix)
Surmic: DM *-nya*   noun plural suffix (with zero
                   and *-c* singulars)

The third of these Eastern Sahelian markers (affix 80) requires further commentary. It has previously been identified as a more widespread animate plural in *r, with pronomial occurrences outside Eastern Sahelian (Greenberg 1963, Bender 1989a). But the cases of *r in the pronouns are all better explainable as affixation of the Nilo-Saharan demonstrative root in *r (see root 1244). The Nilotic development of shapes with *a replacing earlier *i parallels the Nilotic pattern seen also in plural affix 61 above.

Finally, the *-in plural (affix 81) has several salient fossil occurrences in the PESah or early Kir-Abbaian forms of Nilo-Saharan roots (e.g., roots 762 and 1404). Some examples suggest that *-in may have began as a plural that paired off with singulars in *ŋ (affix 71).

Case marking in early Nilo-Saharan

A number of case suffixes trace to early stages in the evolution of Nilo-Saharan, but with two exceptions not to PNS itself (see List 7.2).

List 7.2.   Case markers of early Nilo-Saharan

A. PNS case markers

82. *-a   absolutive   83. *-kɔ   accusative

B. Case marking traceable to the proto-Northern Sudanic stage

84. *-ni   associative   87. *-tʰa   locative (direction)
        (*-ɛ:ni?)   (or *-ʈʰa)
85. *-ri   locative   88. *-si   oblique
86. *-le   locative (of place) 89. *-ŋa   genitive

C. Case marking traceable to the proto-Saharo-Sahelian stage

90. *-ɔw   genitive (definite?) 92. *-yɛ: instrument-agent
91. *-na   genitive (originally
           pronomial?)

D. Case marking traceable to the proto-Tans-Sahel stage

93. *-na   predicative   94. *-o   accusative

The two case suffixes of proposed PNS provenience (affixes 82 and 83) distinguished the absolutive and accusative (the latter previously published in Greenberg 1963 and Bender 1989b) from the nominative, which is proposed here to have been an unmarked case in PNS:

82.   *-a   absolutive

Gumuz *-a   ending of nouns in isolation
Kunama *-a   ending of all singular nouns
Rub: Ik - ᵃ   absolutive (or nominative?)

83.   *-kɔ   accusative

Gule *-k*   accusative (Bender)
Kunama *-k-*   accusative marker in selectors
                               (Bender 1989b *inter alia*)
Saharan: Kanuri *-gà*   object marker
Maban: Maba *-go*   object pronoun suffix
Astaboran: Dongolawi *-k-/-g-* object marker
Rub: Ik *-kᵃ*   accusative

The For and Bertha object pronouns in *gi (which see under root 410) appear to be distinct forms (despite seeming to have a similar surface outcome), and do not belong here.

A wider marking of case seems to have been fully established only as of the Northern Sudanic era, and the members of the new paradigm constituted a distinct category of case from that proposed for PNS—of indirect relation (as is marked in English by prepositions) as opposed to direct relation (nominative, accusative, and absolutive) in PNS. This new category of case can be argued to have been the outcome of three successive developments, which together support the primary division of Nilo-Saharan into coordinate Koman and Sudanic branches and of Sudanic into Central and Northern subbranches. Koman is prepositional in its relating of nouns to other nouns and of nouns to the direction and position of action, with independent preposed morphemes serving to convey such relationships. In earliest Sudanic, in contrast, many of the equivalent morphemes were probably postpositions, as both the consistent testimony of Central Sudanic

languages and the presence of bound, suffixed case markers through-out Northern Sudanic show.

This evidence is most directly and simply explained by postulating, as step one, that PNS had prepositions throughrout, a situation preserved in Uduk of Koman; as step two, that in Sudanic these prepositions became postpositions; and as step three, that by the Northern Sudanic period, if not before, a number of such postpositions had evolved into bound, suffixed case markers.

The recrudescence of prepositional word order in such groups as Jebel (Gaam, etc.), Nilotic, and Rub can be attributed to subsequent areal influences stemming from the Koman speech communities. Koman-related languages were once widespread in the far eastern sudan regions now inhabited by the speakers of Gaam, Nilotic, and perhaps Rub, and their former presence is well attested in the loanword evidence from these language groups (of which numerous examples are identified in the Etymological Dictionary).

Three of the directional-positional case formatives, affixes 84-86, may trace back to the Sudanic stage.

84. *-(ε:)ni   associative

CSud: West CSud: Aja -n(i)		"of"
East CSud: Balese -ni		locative; indirect object suffix
Madi ni		"of" (optional postposition)
Saharan: Kanuri -n		locative, means, instrument
Astaboran: Merarit -n		"in"
Kir-Abbaian:		
Nyimang -ɪn		instrument, manner ("by")
-ɪn, -ɛn		benefactive
Daju: Sila ni		"of"
Surmic: Murle -ne, -ni		locative

This morpheme can probably be seen also in the Uduk (Koman) prefixed locative *N-* (nasal, homorganic with initial consonant of word to which it attaches).

85. *-ri   locative

CSud: West CSud *-ri		"of"
EastCSud: Moru -ri		"to"
Saharan: Kanuri –rɪ́		"place of"
Astaboran: Dongolawi -(i)r		"at, in"

86. *-le   locative (of place) (< root 1309)

CSud: WCSud: Sara lɪ		"of"
Kunama -la		locative
For -le		locative
Kir-Abbaian:		
Gaam -(l)- in -i(l)k		"to" (locative)
cf. Nyimang -al, -il		"place of" (see root 1309)

The Gaam postposition apparently combines the *-le locative with PNS *ki "with, by" (root 981, which see). The Nyimang marker, in view of its vowel components, more likely was separately derived in that language from PNS *alɛ "place" (see root 1310).

The balance of evidence, as previously noted, ascribes the systemic establishment of case-marking to the Northern Sudanic era, however. Three suffixes of case, affixes 87-89, appear widely through the Northern Sudanic subbranch but not apparently in Central Sudanic:

87. *-tʰa or *-ʈʰa   locative (of direction)

Kunama -tta		"to, towards, until"
Maban: cf. Masalit -ta ?		genitive singular of singular
		possessed
Astaboran: Tama -ta		"at, to"
Kir-Abbaian:		
C.Jebel: Molo t-		"in"
Bertha -θa (also -θɛ)		"at, to, in"
Nilotic: ENil: Bari ta		"to"
Nilotic: SNil *-ta, *-a:t		itive ("andative") marker of verb
Rub: Soo ta		"to"

88. *-ṣi   oblique

Kunama -si	oblique
For -si	oblique
Kir-Abbaian: Nilotic: SNil *-ci	applicative marker of verb

89. *-ŋa   genitive

Kunama -Vŋa	genitive
Saharan: Tubu -ŋa	genitive of some nouns (?)
For -(i)ŋ	genitive
Maban: Maba -ŋ	genitive

Astaboran: Nara -*ga*   genitive (*ŋ < PNS *ŋ here)

           Tama -*ŋV*   genitive

Two additional genitive markers, affixes 90 and 91, appear traceable to the Saharo-Sahelian period. How the three genitives differed in their specific applications remains adequately to be determined.

90. *-ɔw genitive (definite?)

Saharan: Tubu -*u*, -*uu*   genitive

           Teda -*o*, -*ǫ*   genitive

Astaboran: Tama -*o*, -*a*   genitive

           Old Nubian -*u*   genitive

Kir-Abbaian:

     Bertha -*o*, -*u*   genitive

     Nyimang -*o*, -*u*   genitive

     Surmic *-o   genitive

     Nilotic: SNil: Pakot ɔ̀:   definite genitive (particle)

A genitive postposition, elsewhere occurring in Mamvu (East-Central Sudanic [ECS]) as *u* "of," may be the source of this marker.

91. *-na noun genitive suffix
      *n- pronoun possessive prefix

Saharan *n-   prefix of possessive pronouns

Songay (Northern) -*n*-   genitive connective between noun possessor and possessed

Maban: Maba -*na*   genitive

       Masalit -*ni*   genitive plural of singular possessed (*n- plus *-ih plural [affix 58])

        -*niŋa*   genitive plural of plural possessed (as for singular possessed) plus -*ŋa* plural [affix 71 above])

Astaboran: Nubian *-n   genitive

Kir-Abbaian: Temein -*ŋa*   genitive (pl. -*kiŋa*, with *ki- pl., affix 62)

              ŋ-   prefix of possessive pronouns

Kir-Abbaian: Nilotic: SNil *N-   initial element of possessive pronouns

This last marker can be proposed to derive from a PSN connector particle, originally associative in meaning, as seen in the Kunama -*na* "with, and." In the Bagirmi (Central Sudanic) reflex *an* "of" and in the Saharo-Sahelian reflexes it became a marker of possession. Its recurrence in Saharan and two Kir-Abbaian subgroups as a possessive marker in the reduced shape *n-, prefixed specifically to pronouns, indicates that this particular bound placement of the morpheme can probably be traced to proto-Saharo-Sahelian.

In several instances, particular Nilo-Saharan languages or subgroups have developed genitive markings in which the consonantal component is a voiced labial. At least *four* separate morphemes account for these formations.

One of them is the genitive postposition -*be* of Kanuri (Saharan), which shows regular sound correspondence to Uduk *b*-, the equivalent prefix of plural possessives, and its cognate independent morpheme *ba "of" in Komo. Together these reflexes reveal a PNS prepositional root *bɛ: "of" (see root 47 in Etymological Dictionary), which can therefore be suggested to have been the original PNS means of expressing genitive relation.

Neither the Kanuri nor the Uduk morpheme corresponds phonologically to either of two further possessive markers of labial articulation, the Central Sudanic possessive particle, *ɓa, *ɓɛ, *ɓi, and proto-Nilotic preposition *pa "of"; nor do the Nilotic and Central Sudanic morphemes show regular correspondence to each other. The Nilotic preposition could, however, be explained on phonological grounds as a *borrowing* of a distinct Koman preposition realized as the Uduk *p*-possessive prefix of singular possessive pronouns.

Two other old Nilo-Saharan morphemes that contain labial consonants have sometimes been drafted into use as affixes of possession. They too appear derivable from independent relational roots, probably in origin of respectively dative and instrumental connotations. The first of these can be reconstructed as *ma "for, pertaining to" (root 96) and is attested, among other examples, by Uduk (Koman) *m(a)*- "of" preposed to nouns beginning in *a*-; the Lugbara (ECS) postposition *mà* "for, of"; Masalit (of Maban) -*m* dative case marker; and Nara (Astaboran) -*(a)mma* "of, belonging to" (genitive). The second reconstructs as *mbo: "by, with" (root 86). Its reflexes include Kunama -*mmu*, -*bu* "by (means of)," Kanuri -*mben* "through, via, towards" (-*mb*- plus -*en*, for which see Kanuri -*n* locative-means-instrument, affix 84 above), and Masalit -*mbo* "with."

The Saharo-Sahelian period may also have seen the development of at least one and possibly two further markers of case-like relation. One was originally an instrumental denoting the agent or instrument by

which an action was carried out (affix 92). The second, identified so far only in Songay and the Taman languages of the Sahelian branch of Saharo-Sahelian, probably began as a predicative morpheme directing attention to the object of an action (affix 93). The two, judging from their respective occurrences in Kanuri and Songay, can be proposed to have filled the complementary functions of identifying the agent (affix 92) or the object (affix 93) of an action where the syntactical positionings or the morphology did not otherwise make clear which was the subject and which the object. The situations where this need arose may have been ones where word order served a topicalizing function. Among the Eastern Sahelian languages, both of these affixes sometimes evolved into case markers—the first into a nominative singular, as seen in Old Nubian and in Surmic, and the second into an accusative in the one such instance, in Taman, identified so far.

92. *-yɛ́: or *-yɛ̄:   instrument-agent

Saharan: Kanuri -yé,	subject denoter (Lukas 1937:
Tubu -(y)i, -ye	nominative; Hutchinson 1981: "agent postposition")
Astaboran: Old Nubian -i	nominative singular
Taman: Tama -ɛ	"by" (instrument)
Kir-Abbaian: Nyimang -ɛ, -e	noun suffix of instrument, manner
Surmic: DM *-i	nominative singular
Majang -i	instrument, source
Mursi -ye	instrument
Nilotic: ENil: Maasai -ie	verb instrument suffix
SNil: Kalenjin *-ɛ:(n)	verb instrument suffix

93. *-na (or *-nɛ or *-nɔ)   predicative

Songay *na*	predicative particle
Astaboran: Taman *-n	accusative

An interesting and distinctive development in Nilotic was to shift the point of application of the case markers, wherever preserved (affixes 87, 88, and 92), from nouns to verbs.

A new accusative marker (affix 94) may have emerged in proto-Sahelian but, if so, did not fully displace the earlier PNS accusative (affix 83) from use and has only rarely been retained down to today.

94. *-o   accusative (singular?)

Maban: Masalit -o, -u	accusative singular
Kir-Abbaian: Nyimang -o, -ɔ	accusative

The possibility of an old occurrence of gender marking in Nilo-Saharan has been raised by Bender (1989b). Pronomial instances of gender differentiation do appear in Southern Koman and in a few subgroups and individual languages elsewhere in the family, notably Bongo of Central Sudanic and Daju of Eastern Sahelian; and grammatical gender in nouns has arisen separately in the Lotuko-Maa subgroup of Eastern Nilotic. But in all cases the affixal markers of such distinctions cannot be made, even with special pleading, to show regular sound correspondence outside of relatively narrow subgroupings—the widest-spread being a possible shared masculine element in *m in Daju and Nilotic of Kir (see root 160; also Greenberg 1970 and Bender 1989b)—and so must be accounted as sporadic and unconnected developments of much more recent eras than PNS.

Early Nilo-Saharan verb conjugational marking: tense-aspect

A number of old Nilo-Saharan affixes of tense or aspect in verbs can also be given provisional reconstructions. Originally, it appears, Nilo-Saharan had a characteristically aspect- rather than tense-marking conjugational system (see List 7.3).

List 7.3. Tense-aspect marking in early Nilo-Saharan

A. Tense-Aspect markers of PNS or proto-Sudanic distribution

95.	*kʰey-	aorist	100.	*-(a)kɔ:	pluperfect (?)
96.	*ɔ́:-	potential	101.	*-nà	perfect
97.	*-ye	progressive	102.	*-a	imperfect
98.	*mi-	subjunctive	103.	*è:s-	future
99.	*-nè	optative			

B. Tense-Aspect markers traceable to the proto-Saharo-Sahelian stage

104.	*-ey	aorist (replaced PNS *kʰey- aorist)
105.	*tʰe:y-	subsequent future

C. Tense marker traceable to the proto-Trans-Sahel stage

106. *la-, *lɔ-, or *lɛ-   distant future

D. Aspect markers traceable to proto-Eastern Sahelian stage

107. *-iṭa or *-iṭʰa   perfect (replaced PNS *-nà perfect)
108. *-(V)Ṭwɛ   second person plural imperative

Some of the markers of this system appear to have begun as prefixed elements, and other as suffixes. How far back some of these markers can be traced in the history of the family is unclear.

Present action in early Nilo-Saharan appears to have been subsumed within the scope of an aorist, a specific marker of which (affix 95) can be proposed for PNS:

95. *kʰey-   aorist (indefinite aspect?)

Koman:	Uduk kʰi-	historical present
	kʰi(n)-	past; perfect (source of *n* unclear; perhaps < perfect, affix 99?)
Kunama -ke		aorist

A second PNS affix, 96, marked probably the potential mood:

96. *ɔ-, *a-   potential

Koman:	Komo o-	future
CSud:	Balese -a-	adhortative (PCS *ɔ > Balese /a/)
	Mamvu -a-	progressive-volitive
Saharan:	Kanuri -ó	hortative (also -é)
For -ó		subjunctive (also -à , -ò)
Kir-Abbaian:	Bertha -a	intent
Rub:	Ik -mo, -mɔ	negative of potential mood (*m-ɔ, negative *m- [affix 113] plus *-ɔ potential)
	Soo -ó- in kó-	future (proposed structure: *Ka- future seen in Murle of Surmic plus *ɔ potential marker; see discussion after affix 103 below for futures in *K)

The preposed location of these two affixes, 95 and 96, in present-day Southern Koman languages, as well as the same placement of two other such markers in Gumuz (affixes 97 and 99 below) and of four in Central Sudanic (affixes 96, 98, 100, and 101), suggests that some, although not all, of the aspect markers in PNS were originally prefixal. The generalization of suffixed marking elsewhere in the family may thus have been largely engendered at the Northern Sudanic stage (compare the proposal above that Nilo-Saharan had passed from a prepositional to postpositional marking of noun relation by or before that same historical stage). A later, general counter-shift of tense-aspect marking to prefixal position took place in Songay and separately in Nilotic.

Four other tense-aspect markers, affixes 97-100, also apparently had a PNS provenance:

97. *-ye   progressive

Koman:	Gumuz -e-	narrative, also remote past
CSud:	Baka -i	progressive
Saharan:	Kanuri -in	stative (Lukas 1937: continuous; for element -n, see affix 6)
For -i		present (of class I verbs)
Kir-Abbaian:	Bertha -i	habitual
	Temein -ɛ	indicative past and present
	Nilotic: WNil: Jyang -ye	habitual
	SNil: Kalenjin *-i	continuous aspect
Rub:	Soo -i	frequentative
	Ik -i-	habitual

98. *mi-   subjunctive

Koman:	Uduk mi(n)-	future particle (source of *n* unclear: perhaps epenthetic?)
	Gumuz: Sese mí-	future
	-m-	conditional
CSud:	Moru -mi-	subjunctive-imperative prefix
Kunama -nni		future negative (< *n-mi; see affix 112 below for negative in *n-)
Songay -ma-		subjunctive
Astaboran: Nara -am , -em		subjunctive
Rub: Ik -am-		potential (extension)

A Koman innovation, applying this marker to the future, can be seen in Uduk and Gumuz. A separate parallel shift in Kunama apparently underlies that language's application of the affix to the future negative. At the Sahelian stage the original vowel component of this affix was replaced apparently by *a, for reasons as yet unexplained. A possible source of the changed vowel might have been the old Nilo-Saharan imperfect in *-á (affix 102 below).

99. *-nè optative

Koman: Uduk -(n)a	hortative (*-nɛ rather than *ne must be reconstructed here, however; probable structure *n-ɛ, stem plus 3rd person sing. marker (root 1588), as in Gumuz jussive sing.)
Gumuz n-	3rd person jussive (na- sing: *n plus 3rd sing. subj. marker; nii- pl.: *n- plus 3rd pl. subj. marker)
Kunama -na	future
-mma	negative conditional (*m-na; see affix 113 below for *m negative)
For ni(ŋ) (plus verb in subjunctive)	future (independent morpheme: adds NS *ŋ nominal suffix)
Maban: Maba -nee	optative
Astaboran: Tama -ne	conditional
Rub: Ik -ne	optative

100. *-(a)kɔ: pluperfect (?)

Koman: Gumuz -aka	present-past
CSud: Baka ko	past
Saharan: Kanuri -k(o)-	past (but Jarrett 1981: ki-)
Songay -ga-	progressive positive, past and present action
Astaboran: Dongolawi -ko-	perfect
Kir-Abbaian: Daju: Shatt -ka	past
Surmic: Majang -ko	past
Nilotic: Kalenjin *kV-	three different pasts, depending on vowel component (Nandi kɔ:- /ko:- intermediate past;

Rub: Soo ka-	see affixes 102 and 104 for proposed sources of other vowel elements)
Ik -ak ª	distant past
	perfective

The last of these five PNS tense-aspect affixes, 100, has been provisionally attributed an originally pluperfect function, connoting action already completed in the past, on the basis of its application to distant past in Soo and to less-than-recent past in its unmodified Kalenjin shape, and its recurrent taking on of a straightforward past tense meaning in other languages. In Gumuz it appears to have expanded its scope, displacing the PNS aorist (affix 95) as the general present-past. The occurrence of forms with *a instead of expected *ɔ in Rub, Shatt (Daju), and Gumuz probably reflects analogical levelling, while cases of *o can be attributed to earlier allomorphs generated, as in Nandi (Nilotic), by [+high] vowel environments in the verb, which were then generalized to all contexts.

Three additional markers, two apparently aspectual (affixes 101 and 102) and the third (103) marking future action, can be traced at least to the Sudanic era, although not certainly on present evidence to PNS. The proposed functions of the first two do, however, neatly fill out the the system presaged by affixes 95-100.

101. *-nâ perfect

CSud: Mamvu-Balese *na	perfect
Saharan: Kanuri -nà	perfect ("resultative")
Songay -na-	perfect
Rub: Soo na-	narrative

In Eastern Sahelian, the Soo reflex suggests, this marker shifted its application to a specialized kind of past time, while its former role as the general affix of the perfect was taken over by an Eastern Sahelian innovation (see affix 107 below).

102. *-a imperfect

CSud: Balese -á	perfect
For -à	perfect (of For class III and IV verbs)
present tense marker plus -à	imperfect

Maban: Maba, Masalit -*a*	past (in one class of verbs)
Maba -*a*	present and past negative
Kir-Abbaian: Bertha -*a*-	perfect (between stem and person markers in Triulzi et al. 1976)
Daju: Shatt -*a*	present
Surmic: Me'en -*(u)a*	past
Nilotic: Kalenjin **-a*-	in **ka*- immediate past (see affix 100 for source of **k*-)

103. **è:s-*   future

CSud: Balese -*sì*-	future (precedes stem)
Saharan: Tubu *sV*-	future
Astaboran: Tama -*s(a)*	future
Hill Nubian -*š*-	future
Rub: Ik -*es*	future

This future marker appears from its Central Sudanic and Saharan reflexes to have long remained a prefix, only in Eastern Sahelian shifting to suffixal position, in keeping with the more general pattern of that group.

A future marking in **kʰ* has been noted in four widely dispersed cases. Two occur in geographically close Eastern Sahelian languages and probably reflect earlier areal influences: in Murle of Surmic, with *ka-*, and Soo of Rub, with *kó-*. Songay, in addition to its future formatives noted below (affixes 105 and 106), can also indicate future action by using its verb *ka* "to come" as an auxiliary conjugated in the progressive aspect. And finally a future particle *kǎ* is used in Baledha of the Central Sudanic division of Nilo-Saharan.

It is not clear that the three shapes reconstructible as **kʰa*—despite their wide distribution and their probable common source in root 1029, **kʰi*, **kʰa* "to come/go"—represent a single innovation from that source. The Songay reflex in particular appears to reapply the still existing independent verb in an auxiliary role; and it is not at all implausible to suppose that this reapplication might have happened independently a couple of other times in the family's history—once in Baledha of Central Sudanic and again in Surmic of Eastern Sahelian. The Soo morpheme, lacking regular vowel correspondence to the Murle shape, may also have a distinct source. But it can more plausibly be argued (after the pattern of the Ik negative potential in affix 96) to compound the root **kʰa*, either borrowed from Surmic *ka-* or independently de-

veloped from the verb root 1027, with the **-š* potential marker (affix 96).

One further verb marker of tense-aspect, affix 104, can be reconstructed back to the Saharo-Sahelian stage. It can be inferred to have been an aorist and, from its occurrences in the family—i.e., widely through the Saharo-Sahelian languages in complementary distribution with the PNS aorist, affix 95, with its Koman and Kunama reflexes—to be a Saharo-Sahelian innovation replacing the original PNS aorist (for parallel arguments on subgrouping from lexical replacement histories, see Chapter 4). Differing from the PNS original **kʰey* (affix 95) apparently only in its lack of the initial consonant **kʰ*, the Saharo-Sahelian form (affix 104) in fact can be understood as a morphologically modified shape of the PNS aorist marker, derivable by a two-step morphophonological shift: (1) an allomorphic elision of **kʰ* from the suffixed version of PNS **-kʰey* when the preceding verb stem ended in a consonant, followed by (2) a generalization of the resulting allomorph **-ey* to all environments; hence the Saharo-Sahelian shape:

104.   **-ey*   aorist (indefinite aspect?)

Saharan: Teda -*i*	aorist
Zaghawa -*i*	past
For -*í*	perfect and subjunctive (of For class II verbs)
Maban: Maba -*i*, Masalit -*ei*	present
Astaboran: Nara -*i*	imperfect with negative (?)
Kir-Abbaian: Bertha -*e*	recent past/perfect
Nilotic:	
ENil: Bari -*i* in -*ti*	present, future negative (< **t*-negative, affix 114, plus **-ey* aorist > *ti*)
SNil: Kalenjin **-i:-*	in **ki:-* indefinite (distant?) past (see affix 100 above)
Rub: Soo *i*-	past
Ik -*i*-	aorist (in negative)

An additional tense-aspect affix of Saharo-Sahelian age, 105, conveyed future action. Like the Sudanic future **è:s-* (affix 103), it probably began as a preposed element. It can be proposed to have differed semantically from that marker in having originally connoted a relative or subsequent future—that, at least, is its Songay function.

105. *tʰe:y- subsequent future

Saharan: Kanuri *ti-*		future
Songay *-ti-*		marker of subsequent future
Maban: Maba ´-*tɛ̀*		future
Masalit *-ti*		future
-tei		optative
Kir-Abbaian: Jebel: Molo *-ti-*		future

The Masalit optative noted here under affix 105 can be argued to be a compound tense-aspect marker, underlying *-tʰ i-ey, comprised of the future in *tʰ plus the aorist *-ey (affix 104).

For the immediately following, Sahelian stage, still one other marker of future action, apparently also preposed to the verb, can be identified. Its Songay reflex supports its having originally connoted distant as opposed to near future.

106. *la- (or *lɛ- or *lɔ-) distant future

Songay *-la-*		distant future
Kir-Abbaian: Gaam *-lV-*		future

A likely source for this marker was the independent Nilo-Saharan verb *le/*lo "to go/come" (root 1303).

Another future marking has been noted in scattered instances in Eastern Sahelian, specifically in Dongolawi (Nubian) *bi-* and Western Nilotic *bi. (The Nobiin future prefix *fa-* does not correspond regularly in its vowel to the Dongolawi marker, nor in either its vowel or its consonant to the Western Nilotic shape, and so must be considered a distinct morpheme.) Still an auxiliary verb today in Western Nilotic languages, and its function in several other Eastern Sahelian tongues, even Hill Nubian, maintained by the older future marker, affix 103, this item most probably was an independent morpheme separately drafted into service as a formative of future in Dongolawi and in early Western Nilotic. Its source is likely to be the old Nilo-Saharan root *pí "to come out," the reflexes of which in both Nubian and Nilotic are /bi/ and have, as an independent verb, the simple meaning "come" (see root 573).

Taken together, these two cases of *pi future along with the several instances of *kʰa future (discussed above) and the *lV distant future (affix 106), argue for a reconstructibly old tendency in Nilo-Saharan tongues to form supplementary future usages from auxiliary verbs that, as independent verbs, meant usually "to come" (or sometimes "to

go"). The choice of verb to take up the relevant slot in the system would have depended on what the verb for "to come" was at that point in time. The Nubian future in *-ir/*-ri is another probable derivation of this kind (from root 1289). These cases more certainly indicate the reconstructibility of an old Nilo-Saharan innovational pattern—a old and recurrent tendency toward marking future action with auxillary verbs of motion—than the use of any particular morpheme to fit that pattern.

By the proto-Eastern Sahelian period a new marker of the perfect, affix 107, had come into use displacing the older affix of that aspect, 101, seen above in Central Sudanic, Saharan, and Songay attestations.

107. *-iʈa or *-iʈʰa perfect

Astaboran: Nara *-(i)t-*		perfect
Kir-Abbaian: Jebel: Molo *-tV-*		imperfect
Temein *-ʈV-*		past
Surmic: Majang *-tV-*		completive
Murle *-ta*		past
Nil: Burun [-ð-] (/ʈ/)		completed action marker
Rub: Soo *-it*		perfect

As in the case of the two aorist markers (affixes 95 and 104), the complementary distributions of the two perfects, affixes 101 and 107, cleanly support the subclassification established in Chapter 4, here specifically the existence of an Eastern Sahelian grouping that excludes, among others, the Songay, Saharan, and Central Sudanic languages. The Kir-Abbaian tongues share a further innovation, the elision of the original initial vowel *-i of this marker.

It is tempting to try to connect the isolated Moru (Central Sudanic) perfect postposition *tɛ* and the Teda perfect *-dɛ* with affix 107. The distinctive vowel and the variety of possible PNS sources here for Teda [d] make it an unsatisfactory parallel, but the Moru and Teda markers themselves may derive from a common older Nilo-Saharan adverbial *Tɛ: or *Tay of some kind of past or completed reference.

As for the imperative mood, PNS probably marked singular second person commands by suffixing the subordinate second person singular pronominal *i to the simple verb stem (see root 1600), and—at least as early as the Saharo-Sahelian stage—denoted the plural second person imperative by suffixing the equivalent subordinate second person plural pronominal *wɛ (root 1403). An alternative second plural imperative *-(V)Twɛ (affix 108), composed of a probable plural element in *T, perhaps originally a verb number marker as it is today in

Temein, plus *wɛ, may also possibly trace back to the Saharo-Sahelian stage. Its occurrence is restricted, except in Gaam, to languages where *wɛ has shifted to the singular imperative function:

108. *-(V)Țwɛ   second person plural imperative

Saharan: Tubu -t-   pl. imperative -tu versus sing.
                                  imperative -u (root 1403)

Kir-Abbaian:
  Gaam *-ţ V (-ʄV, -dV)   plural imperative
  Temein -ɔţɔ   plural imperative (sing. -ɔ)
  cf. -ţ   verb plural subject suffix
  Surmic: Me'en -it(u),   imperative plural (some Me'en
  Mursi -to   singular imperatives in -ti)

Verb conjugation: negative marking

Five very widely recurring markers of the negative can be identified in Nilo-Saharan languages, along with one that seems restricted to the Eastern Sahelian subgroup.

List 7.4.   Verb and non-verb negative marking in early Nilo-Saharan

A. PNS and proto-Sudanic negative markers

  109. *-iţe   suffixed verb negative
  110. *kʰɔ   non-verb negative: "not be"
  111. *ɓà   non-verb negative: "not (be) here/there"

B. Negative markers traceable to proto-Northern Sudanic stage

  112. *(a)ne: negative particle: "not yet"
  113. *má-   verb negative of irreal aspects/moods

C. Negative marker traceable to proto-Eastern Sahelian stage

  114. *-To   verb negative of indicative tense/aspect

Just one of these negatives, affix 109, probably suffixed, can be certainly attributed to PNS:

109. *-iţe   suffixed verb negative

Koman: Gumuz -ice   verb negative suffix
Kunama -(i)tta, pl. -(i)tte   negative of noun agent and parti-
                               cipial formations
Saharan: Bodolean *-si ([-ši]) topical negative (e.g., Tubu -shi
                               "not. . .but; not only")
Songay -si-   general verb negative prefix

The Songay and Saharan forms are both regularly derivable from a shape with progressive vowel assimilatory levelling, namely *-iţi (see Chapter 2, Table 2.10, for the regular consonant sound correspondences seen here for PNS *ţ in non-initial position). This shape can thus be viewed as a proto-Saharo-Sahelian phonological innovation. The morpheme was subsequently shifted to the usual Songay prefixal position of such markers, at some point after the shift of *ţ to s /V_ in that language. It became thereafter subject to the also usual Songay deletion of word- and prefix-initial vowels.

    Two other negatives, traceable at least to the Sudanic stage, were independent morphemes in early Nilo-Saharan, and the latter of these, affix 111, appears especially often to have remained so. They were likely most often used in phrasal expressions of the negative rather than as simple verb markers. The different primary meanings proposed for these two morphemes, essentially "not be" and "not (be) there," imply the hypothesis that both began as negatives in non-verbal predicate formations. Shapes with the vowel *a in affix 110 probably reflect analogy influences from other of the negative markers, particularly affixes 111 and 113, both of which have the form *Ca.

110. *kʰɔ   non-verb negative: "not be"

CSud: Moru-Madi *kɔ, *ko   "not"
  Mangbetu ka   negative copula
Maban: Maba kai   "not be" (-i- "be"); negative
                              postposition with future
Astaboran: Nara ka-   negative of present, future
Kir-Abbaian:
  Surmic: Majang -ka   negative of verbal adjectives
  Nilotic: WNil: Luo ɔk   negative marker of verb
    Ocolo ko   negative of imperative
  ENil: Bari kɔ-   negative of past, perfect

111. ɓà non-verb negative: "not (be) here/there"

CSud: East-CSud *ɓa	"not here/not there" (non-verbal negation in Mangbetu; Mamvu-Balese "not")
Saharan: Kanuri -*ba*	verb negative suffix (in perfect, continuous, imperative)
For *a . . . bà* Kir-Abbaian:	verb negative affixation
Daju: Nyalgulgule *ba*	negative marker
Nilotic: WNil: Ocolo *ba*	verb negative element
ENil: Bari *ɓayɪn*	"there is not" (stem plus NS *n durative?)

A fourth negative, traceable to proto-Northern Sudanic, can be posited, from its several applications to negative futures and imperatives, to have originally had the connotation "not yet." It may have initially been an independent morpheme, as *ɓa (affix 111) and *kʰɔ (affix 110) appear to have been.

112. *(a)ne: negative particle ("not yet")

Kunama -*nni*	negative future (*n-mi; see affix 98 for aspectual element *-mi)
Saharan: Kanuri -*ní* Daza -*ni*, -*ne*	negative general negative tense marker
For *na*	particle used in expressions conveying "not yet" (vowel levelling as in Larim reflex?)
Maban: Maba -*an* -*tan*	negative imperative marker negative future marker (consonant of Maba future -*tè* plus -*an* negative imperative)
Kir-Abbaian: Jebel: Molo *n-*, -*(i)n* Surmic: Larim -*na*, -*nya*	negative of attribute and place negative of imperative (final -*a* by analogy to shape of other negative markers; 2nd shape: *-ne-a ?)
Nilotic: ENil: Turkana *ny(i)-*	negative prefix of verb

SNil: Pakot -*nyɛ:*	negative suffix of verb
Rub: Ik *náá*	alternative negative of imperative and imperfective (vowel outcome by analogy to affixes 111 above and 113 below)

An alternative shape *-(a)na: seems to have arisen by the proto-Sahelian stage. A special, limited palatalization shift, *n > *ɲ /_e, has to be postulated to explain the Nilotic outcomes, so it is possible that still another negative marker lurks beneath these instances. Most probably, however, considering the geographical contiguity of the Pakot and Turkana speech territories, areal influences were at work in spreading this particular shape.

One other marker of the negative, affix 113, reconstructs back to Northern Sudanic. Unlike affixes 111 and 112, it seems to have had just a bound form, attached to verbs, and it was probably originally a prefix, although it moved in Kunama to suffixal position in keeping with the locus of the other negative markers in that language (see affixes 109 and 112).

113. *má- negative prefix of verbs

Kunama -*mma*	negative conditional (underlying *m-na, negative plus optative; see affix 99 above)
-*mai*	negative subjunctive and imperative (*ma-i, affix plus PNS *-i imperative singular?)
-*mme*	negative aorist, optative (*m- plus possibly assimilated form of *kʰey aorist (affix 95)
Songay -*ma-*	negative used with perfect
Astaboran: Nara *ma-*	negative of perfect/imperative
Nubian *m-*	verb negative prefix
Taman: Merarit *m(V)-*	verb negative prefix
Kir-Abbaian:	
Surmic: Didinga *ma-*	negative of imperative
Nilotic: WNil: Lango *mäm*	preposed verb negative particle

ENil: Maa *m(i)-   verb negative prefix
SNil: Kalenjin *-ma- verb negative prefix
Rub: Ik *máá*   verb negative marker of perfec-
                       tive and imperative

The aspectual distribution of the reflexes of this affix in Kunama, Ik of Rub, and Didinga of Kir-Abbaian suggests that it began as a negative marker of various irreal aspects and moods. Such an application of affix 113 would, from the proto-Northern Sudanic period onward, have thus restricted the use of the original PNS negative *-iṭe (affix 109) to the indicative tenses-aspects. Affix 113 can be proposed to have expanded its application to the negative of the perfect at the Sahelian stage, as indicated by the Songay, Nara, and Ik reflexes. Separately in the Nubian-Tama (Western Astaboran) and Nilotic groups it then became a still more general verb negative marker.

An additional negative particle, a verb suffix *To (affix 114), can be reconstructed for the Eastern Sahelian subgroup. Its distribution, complementary to that of PNS *-iṭe, suggests that it was adopted initially as a proto-Eastern Sahelian innovation that replaced *-iṭe in its remaining usages. In other words, presumably at first *-To would have applied to those aspects and tenses whose negatives had not previously become the province of *ma-.

114. *-To negative (T = tʰ, ṭ, or ṭʰ)

Astaboran: Taman *-to   verb negative suffix
Kir-Abbaian: Jebel: Aka *-to* redundant verb negative marker
                              (used in conjunction with
                              Aka negative prefix *wəl-*)

Jebel: Molo *-(i)tto*   negative existence
Surmic: Majang *-Vt, tV-* negative markers of verbs
Nilotic: Bari *ti-*   negative of present, future (*t-i,
                           negative marker with *-i <
                           *-ey aorist, affix 104, sub-
                           stituted for final vowel)

Rub: Ik *ńtá*   verb negative marker except in
                           imperative and perfective (Ik
                           *N- prefix forming indepen-
                           dent morpheme plus affix
                           element *t, with V > *á* by
                           analogy to *máá* negative,
                           affix 113)

Two additional negative affixes appear in just the Kir subgroup of Kir-Abbaian and were therefore developments of a period, proto-Kir, later than those normally dealt with in this work. The first of these, of the shape *pʰa, shows itself in Nyimang *fa-*, a general verbal negative prefix, in Ocolo (Western Nilotic) *pa*, the negative habitual marker, and, with an unexplained variant vowel, as the Acholi and Lango (Western Nilotic) negative particle *pe*.

The second Kir negative probably had the original shape *-aŋo, as reflected in Temein *-(a)ŋ*, an optional redundant marking of the negative in verbs; in the Didinga-Murle (Surmic) prefix *ŋa(n)- "not yet"; in Liguri (of Daju) *-ŋo* verbal negative marker; and in Alur (Western Nilotic) *(u)ŋgɔ*, a negative postposition. Its likely source was an independent morpheme originally connoting "not yet," as suggested by its Surmic meaning. Baledha (Central Sudanic) *ngă*, a negative marker used with the verb "to be," is probably not cognate with the Kir affix since the expected Central Sudanic reflex of the PNS root shape *-aŋo would be *ŋa or *ŋo, not *nga.

Verb conjugation: person marking

Person marking in verbs has been repeatedly reformulated in the history of the various Nilo-Saharan languages, the recurrent pattern being the conversion of formerly independent pronouns to reduced, bound forms, replacing earlier markers that themselves at a still earlier period had been similarly derived. In a number of instances, the same pronominals have probably independently been converted to person markers in different subgroupings of the family. As a consequence, although the derivations of most such markers is clear enough, the point or points in history at which they first took on the roles of bound morphemes is often uncertain.

A few specific reconstructions nevertheless appear fairly well supported. The PNS first person singular subject marker, as proposed in Chapter 8, seems to have been *na- (root 1599); and the evidence for the use of the second person singular element *i (root 1600) as the PNS singular imperative marker (above, this chapter) is probably reflective of its application as the general second person singular subject marker in PNS. Third person singular subject in PNS may have had a zero marking, while the third person plural may have been marked by *i:-, a reduced form of the PNS pronoun *yɛh "they" (root 1493). The first and second person plural subject indicators of PNS remain uncertain postulations. Separate bound accusative as well as nominative markers probably have to be reconstructed; the bearers of the

bound accusative function were likely to have been the PNS subordinate pronomials (see Chapter 8 for identification of these markers).

To the Northern Sudanic stage of Nilo-Saharan history may be attributed the innovation of applying the third person indefinite pronoun *wa as the third person singular subject marker (see root 1369). And by the subsequent Saharo-Sahelian period, a form of the second person plural pronoun *wɛ had become—if in fact it had not already long been—the bound verb marker of second person plural; the evidence both of imperative formations and of other tense-aspect marking place this usage at least that early (see root 1403). Also to that stage may be attributed the development of an additional marker *ai of second person singular, derived from PNS *ai "you (sing. obj.)" (root 1601). For the Trans-Sahel stage, a defining innovation (to be added to those proposed for it in Chapter 4) was the conversion of the older first person plural pronoun *kʰahi, in the reduced shape *kʰi-, from a previously independent morpheme into a long-lived, widely preserved bound first person plural subject marker of verbs (root 1587; see also Chapter 8). In the latter instance, the morpheme displaced from use by *kʰi- remains to be certainly identified. Also by, or perhaps at, the Trans-Sahel period, the first person singular subject function of PNS *na- had been taken over by *a-, derived from PNS *ah "me" (root 1583). But *i- apparently continued in use as its second person singular equivalent.

A variety of other innovations in number marking of still later historical placement can also be identified. Their attestations are to be found in the Etymological Dictionary under the headings of a large number of different pronomial and demonstrative roots. These include roots 51, 160, 235, 279, 280, 780, 792, 907, 1122, 1154, 1244, 1292, 1374, 1396, 1468, 1584, 1586-1590, and 1601.

CHAPTER 8
A PROPOSED HISTORY OF NILO-SAHARAN PRONOUN SYSTEMS

The PNS pronouns

A complex system of pronouns, with several possible forms for each number and person, is reconstructible for the proto-Nilo-Saharan (PNS) language (Table 8.1).

Table 8.1. Proto-Nilo-Saharan pronouns

	singular	*plural*
first person	*āɟā *kʰāh (topic?) *wah (accusative?) *āh (subordinate)	*ānà (inclusive) *ám (exclusive) *ahiɭ (accusative?; exclusive?) (*tí ?) (subordinate inclusive?) (*θa ?) (subordinate exclusive?)
second person	*īní *aina (topic?) *áì (accusative?) *í (subordinate)	*wém *wɛ́ (subordinate)
third person	*únū (*kʰɛh?) (topic?) *ɛh (subordinate) (*nɛh?) (accusative?)	*yɛ́h

The term "subordinate" is used here to denote a pronomial of an as yet uncertain range of non-nominative usages, often, but perhaps not always, of bound form, operating in locatives, possessives, etc., and, at the early Nilo-Saharan eras, probably functioning as the regular, non-topical object markers. Both here and at the later stages of

Nilo-Saharan history, the emphatic or topical pronouns did not govern corresponding subordinate forms separate from those of the equivalent non-emphatic independent pronouns.

In the first person singular of PNS, both *k^hāh (root 1586) and *āɗā (root 437) must be traced back as independent pronouns of the proto-language. Each occurs widely across the family in a varied array of subgroups; and, notably, both appear in different languages of the Southern Koman subbranch of the Koman branch of Nilo-Saharan—*k^hāh, analogized, as *ák^{h}àh, to the canonical singular pronoun shape VCV, as the independent first person singular pronoun of the Southwestern subgroup (Uduk and Komo), with *āɗā serving the same function in the Southeastern subgroup (Kwama) and with a reduced form -g- appearing also as one of the first person singular subject markers of the verb in the Komo language of the Southwestern subgroup. The idea that both are reflexes of *k^hāh is refuted by the internal Koman sound correspondence patterns.

The original semantic or grammatical distinction between the two PNS independent first person singular pronouns remains to be conclusively established. But an attractive and plausible solution that will be followed throughout in this discussion is that one of the two was the regular independent subject pronoun and the other was a topic or emphatic pronoun. The Songay reflex of *āɗā is specifically an emphatic first person singular, although its adoption of that role probably derives from its addition of a Nilo-Saharan noun suffix to the stem (see root 437). The use of the same root as an affixed verb subject marker in Komo makes it more probable that *āɗā began, certainly in proto-Southern Komo as it is today in Kwama of the Southeastern subgroup, as the normal independent subject pronoun. In that case *k^hāh becomes the likelier candidate for a topicalized usage.

The derivational morphology of *k^hāh, prefixing *k^h- to the PNS subordinate first person singular pronoun *ah, projects that interpretation back to PNS itself. The morpheme *k^h- is found throughout the family, in every subgroup *except* Koman, as a nominal prefix of obscure meaning and application. As argued in Chapter 6, its various occurrences in the Etymological Dictionary cumulatively give strong support to Greenberg's (1981) proposal that *k^h- was a "stage III article." That its sole known occurrence in Koman is in a first person pronoun of proposed original topicalizing meaning only reinforces that conclusion.

Thus the pronominal evidence, too, best fits its having begun as an article of some sort in pre-proto-Nilo-Saharan (pre-PNS), perhaps a simple preposed independent morpheme of definite reference, and by PNS times to have been attached to the subordinate first person singu-

lar stem *āh (root 1583) to produce a topical pronoun *k^hāh ("the-me" = *moi*). In the line of descent leading to proto-Koman, *k^h- can be argued to have dropped out of use without otherwise being lexicalized, thus explaining its failure to appear in any other extant Koman materials. But in the Sudanic branch it would have remained productive, becoming a bound morpheme and losing its function as a regular marker of topic, but continuing to confer some kind of nominal specificity to the roots to which it was attached. In some cases this attachment could effect a noun usage for a root previously verbal, hence its occurrence as a noun formative; and in others it could give a more concrete reference to a root of less tangible or of more indefinite reference. A striking early case of this latter consequence is the proto-Northern Sudanic (PNSud) innovation of a root for "person" by adding *k^h- to PNS *wa "third person indefinite pronoun" (root 1369). A further example, of still later provenance, of *k^h- as a marker with article-like properties is its prefixation in proto-Sahelian to the early Nilo-Saharan root *āyr "other" (root 1510), producing meanings such as "the other one, another," etc., in the modern Sahelian languages.

The provisional conclusion followed here, then, is that PNS *āɗā filled the role of a normal independent first person subject pronoun, while PNS *k^hāh was an emphatic or topic first person independent pronoun. The form *āh probably appeared in a variety of secondary roles. From the Koman evidence it can be supposed to have been the accusative pronoun, figuring probably in possessives also. In a reduced form *a, it may possibly already have received some application as a person marker in PNS verb morphology; but this sort of usage most likely arose more than once later on in Nilo-Saharan history, especially considering the fact that an alternative PNS verb marker of first person singular *na (root 1599), of pre-proto-PNS provenience, seems clearly reconstructible and has lasted in use down to the present in one branch of Eastern Sahelian as well as in Kunama and Koman.

What then of PNS *wah (root 1374)? Parallel in structure to *k^hāh, it is analyzable into a stem *w-, a demonstrative root and thus of topicalizing potential (see root 1369 for discussion), plus the PNS subordinate first person pronoun *ah. The provisional solution followed here takes account of the existence in PNS of a marked accusative in nouns, distinct from an unmarked nominative (see Chapter 7). Because that distinction requires as its normal concomitant distinct nominative and accusative forms in the pronouns, *wah can be understood as most probably the accusative pronominal partner of *k^hāh—in other words, as the PNS emphatic or topic first person pronoun of direct object contexts.

The same sort of pronomial variety appears in the second person singular. Three clear second person singular independent pronouns, *ĭní (root 280), *aina (root 1602), and *áì (root 1601) can be reconstructed, along with a subordinate form *í. Again it seems probable that one of the three non-subordinate items was the regular nominative, whereas another of them was the emphatic. And, as for the first person, the overt comparative evidence is opaque, while the morphology suggests where the distinction might have lain. The roots *áì and *aina seem the more probable candidates for the topical second person singular pronouns because of their derivational features. In particular, like *kʰāh they are composed of a nominal prefix, here the PNS *a- attributive noun formative, plus the subordinate pronoun of person, in this case *í (i.e., "of/for/characteristically you" = "toi"). The shorter shape *áì is specifically an accusative pronoun in the Koman languages, whereas the reflexes of *aina, within Koman and outside of it, consistently have nominative function (see roots 1601 and 1602). Thus *áì can be argued to have filled the direct object topic slot in the second person, corresponding to *wah in the first person, and *aina the nominative topic slot, attributed in first person to *kʰāh. The remaining second person singular root *ĭní, as the comparative evidence widely affirms, was certainly the normal PNS independent pronoun. It occurs all through the family, except in Koman, as a nominative independent pronoun. In Uduk of Koman, prefixed with a marker of possession (see root 280), it denotes second person singular possessive, showing its derivation there, too, from a formerly independent pronoun.

Further in keeping with this solution, *aina and *kʰāh have parallel outcomes in Southwestern Koman (Uduk, Komo): i.e., each has taken on the role of an regular independent nominative pronoun. A single shift in usages—dropping the earlier regular nominatives *āɗā (still attested in Komo as a first person singular subject marker) and *ĭní (still preserved in possessive formations in Uduk) and giving their roles over to the corresponding former emphatics—suffices to explain the pronomial outcomes of the first and second persons singular in that subgroup.

The provisional conclusion for the PNS second person singular pronouns is thus that *ĭní was the regular nominative form; that *aina and *áì were the two emphatic or topic forms; and that *í (root 1600) was the second person equivalent to subordinate first person *āh.

In the third person singular position, a parallel variety of pronouns probably also existed. Two rather than four pronouns can be certainly reconstructed: *únū (root 281), the nominative singular third person pronoun ("he, she, it"), and *ɛ̄h (root 1588), the subordinate

third person pronoun, equivalent in function to first person *āh and second person *í.

A third probable, but less certain PNS pronoun was *kʰɛh (root 1589). Its structure parallels exactly that of first person *kʰāh, attaching the prefix *kʰ- to the equivalent subordinate pronoun *ɛh, and it thus can be argued, like *kʰāh, to have been in origin an emphatic or topical pronoun. Attested in each of the primary subbranches of the proposed Sudanic branch of the family, and thus traceable to proto-Sudanic, it is not known from the other primary Nilo-Saharan branch, Koman. But the derivational operation seen in *kʰɛh is one that the evidence of *kʰāh specifically situates in PNS times. Thus *kʰɛh, too, was in all probability a PNS pronoun, preserved in Sudanic but lost in the Koman branch.

Was there also a fourth third person pronoun, an accusative of topic? A possible candidate can be suggested, *nɛh (root 1590). Like *kʰɛh, it is known today only from languages of the Sudanic branch, but its attributability to PNS is much more suspect. It evidently comprises an element *n- plus the third person singular subordinate pronomial of PNS, *ɛh. At present two possible sources for *n- can be proposed: (1) the PNS *ne, *na demonstrative (root 256); or (2) the *n singular marker known from Sudanic attestations (Chapter 7, affix 66).

The first of these possible derivations is, for semantic reasons, the less plausible. At the Sudanic as well as the prior PNS stage, *ne, *na was an adverbial of location (i.e., "here"/"there"; see notes to root 256). Only from the Northern Sudanic era onward did it begin to take on the kind of demonstrative uses that would have made it a suitable base of personal pronouns.

The second solution fits well semantically, however, and has the added virtue of accounting simultaneously for both *nɛh and the third person plural pronoun of PNS, *yɛh (root 1493), and accounting for them with neat economy. In its Central Sudanic attestations, *n singular pairs with *y plural (Chapter 7, affixes 66 and 65). This same pattern can be proposed to underlie the two third person pronouns. The pronoun *nɛh, it can be argued, combined the singular marker *n with the third person subordinate stem *ɛh, while *yɛh conjoined its plural mate *y with the same stem. This solution does not of itself indicate whether *nɛh was an object or subject pronoun. The proposed fit of *kʰɛh in the slot of nominative third person singular pronoun of topic would seem, however, to relegate *nɛh to an accusative role, and that solution has therefore been followed in the tabling of data.

The plural pronouns of PNS followed a somewhat different patterning from that of the singulars. No topic pronouns distinct from the

regular independent forms seem reconstructible. For the two first person plural independent pronouns—*ám (root 161) inclusive, and *ánā (root 279) exclusive—separate subordinate first person plural morphemes, *ti (root 779) mated with *ánā, and *θa (root 1122) with *ám, can be indirectly and very tentatively inferred, but neither can be directly demonstrated (see discussion of Northern Sudanic pronouns below). Interestingly, just one accusative first person plural pronoun, *ahil, probably originally an exclusive, can yet be proposed. For the second person plural independent form *wém (root 1396), no candidate for a separate accusative form can as yet be certainly identified, although the proposed subordinate second person plural *wɛ́ (root 1403) may have filled that role, among others. In the third person plural just a single pronoun *yɛ́h "they" (root 1493) can presently be reconstructed.

First, second, and third person dual pronouns turn up in the Kunama subgroup of Nilo-Saharan. They are, however, isolated innovations of Kunama (see roots 1493, 1587, and 1601), not traceable elsewhere in the family.

At least one other PNS morpheme of person is reconstructible, and its postulation allows the basic outlines of a still earlier, pre-PNS pronoun system to be proposed. This marker has the shape *-na, *-an (root 1598) and denotes first person singular subject in some Koman languages (e.g., Komo), in Kunama, and in Western Astaboran of the Eastern Sahelian group. The existence of such a bound morpheme at one stage in a language family's history can normally be taken to imply the existence at an earlier stage in time of an independent pronoun from which that morpheme would have derived—in this case, a pre-PNS pronoun *ánā "I," with a VCV shape in keeping with those of the other PNS singular nominative pronouns. (Note that Kir *ane: "I," for which see root 1583, can be shown to be a distinct formation and *not* a reflex of the root *ánā.)

Now a first person pronoun *ánā (root 279) did exist in PNS, but it denoted first person plural inclusive. The arresting structural feature of this pronoun, however, was its VCV shape, precisely parallel to that of the second and third person singular pronouns, *īní and *únū, but at variance with the attested (C)Vm shapes of the other two reconstructible plural pronouns. The root *ánā, that is to say, bears the stigmata of having originated as a singular rather than plural pronoun. The solution that satisfactorily ties these various elements together is a pre-PNS system of independent pronouns lacking a distinction between inclusive and exclusive in the first person plural and probably lacking emphatic or topical pronouns (Table 8.2)

Table 8.2. Proposed pre-PNS pronouns

	singular	plural
first person	*ánā	*ám
second person	*īní	*wém
third person	*únū	(?)

In this proposed pre-PNS system, singular pronouns had the canonical shape VnV and plural pronouns the shape *(C)Vm, where V or (C)V marked person. In the first person singular and plural and the second person singular pronouns, the markers derived from *ah and *i respectively, as also attested in PNS. The element denoting third person, *u (< possible earlier *wi, for which see root 1369), had apparently been lost by PNS times, because it is not attested anywhere in Nilo-Saharan, in which the common third person marker is *ɛ (or *ɛh). The second person marker *wɛ́ (root 1403), originally plural, which appears also in *wém, recurs in a number of second person pronominal formations in various Nilo-Saharan subgroups.

In the evolution of the PNS language, it can thus be argued, *ánā came to handle a newly emerging function, first person plural inclusive, distinguished from first person plural exclusive—the latter in consequence becoming the domain of the former general first person plural pronoun *ám. Only in a reduced, bound form did *ánā maintain its previous singular function, as the PNS first person singular subject marker of verbs. Meanwhile a new first person singular pronoun *áɗā, paralleling the canonical VCV shape of the existing singular pronouns, although with a different consonant base (root 410), and still marking first person singular with the vowel *a, took the place of *ánā among the singular independent pronouns. Another root, *ɛh (1588), perhaps already present in pre-Nilo-Saharan, filled the subordinate pronoun functions of the third person singular position. And finally PNS developed equivalent emphatic or topic pronouns for each of the singular positions in the system, thus yielding the mature PNS system presented in Table 8.1.

Possible pronoun innovations attesting the proto-Sudanic era

Beginning with this proposed layout of pronouns, the PNS system can be shown to have evolved in ways that make clear sense when

fitted into the subclassification of the family required by the evidence of semantic and lexical replacement histories. Particular pronoun innovations attest to the reality of each of the major and minor branchings reconstructed in Chapter 4 and in earlier work by the writer (Ehret 1983a and 1989), and sometimes major shifts in the overall structure of the pronominal system mark these junctures as well. The pronoun history that can be reconstructed from the comparative Nilo-Saharan evidence, in other words, tends to corroborate the classificatory conclusions reached on quite different grounds, most powerfully in Chapter 4.

The genetic branching least certainly marked by pronoun innovation is the earliest, that of PNS into its primary Koman and Sudanic branches. During the postulated Sudanic stage of Nilo-Saharan history, two possible innovations to the pronoun system, both in third person, may have arisen, but each more probably belongs to other eras. The first of these, *nεh, "him, her, it," has already been discussed above as potentially of PNS attribution.

The second possibility is a third person singular pronoun, *sī (see root 1154). It directly converts a PNS near demonstrative or demonstrative pronoun *sī to a personal pronoun in a single Central Sudanic language, Aja, and in several distantly related Northern Sudanic tongues. The Northern Sudanic reflexes very much do appear to reflect a usage traceable back to at least PNSud. The question here is whether the Central Sudanic requires tracing the innovation back one stage earlier in Nilo-Saharan history, to proto-Sudanic, or instead—in view of the commonness in the world's languages of third person pronoun derivations from demonstratives—an independent, parallel development. For now, it seems best understood as separate innovations in Aja and in Northern Sudanic (see applicable sections below).

The PNS system of multiple singular and solitary plural personal pronouns evolved in a variety of directions among the Nilo-Saharan languages. In the Koman branch the distinction between *āɠā and *kʰāh lasted down to just a few thousand years ago, into the proto-Southern Koman period, allowing *āɠā in Southeastern and *kʰāh in Southwestern Koman—once that distinction broke down—to become the lone independent nominative pronouns of their respective subgroups. In the Northern Sudanic subbranch of the Sudanic branch, the long-term trend was at first toward adding to the PNS pronoun patterning and then later toward simplification of the system, but separately in different ways in the different subgroups. In the Central Sudanic subbranch, elements of the PNS pattern may have persisted through the pre-proto-Central Sudanic (pre-PCS) era, but if so with considerable change in its specific referents.

Developments among the pronouns in Central Sudanic

A long history of phonological and morphological evolution lay between the end of the proto-Sudanic era and the emergence of the PCS language. The PCS pronominal system that eventuated out of that history (Ehret, MS) shows both connections to the earlier PNS system and also major differences (Table 8.3).

Table 8.3. Proto-Central Sudanic pronouns

	singular	*plural*
first person	*ma *a (subordinate)	*ama *1ε (exclusive?) (PNS *ahil̩ regularly > pre-PCS *ail > *εl > PCS *1ε)
second person	*ini *me *e, *i (subordinate)	*mu *ame
third person	*nε *kε *'e (subordinate) (*sī ?)	*yε

Three processes were at work in creating this array. The sweeping consonant shifts that yielded the PCS phonology (see Chapter 2) converted all PNS roots to the PCS shape *CV. At the same time, a proliferation of new productive affixes, especially of the shape V- (see Chapter 6, affixes 54 and 55 for PNS examples), often allowed the preservation in PCS of *VCV shapes for roots of the PNS format *VCV(C) in which initial V- derived from earlier Nilo-Saharan morphological processes. The PCS second person pronoun *ini is an apparent example. And thirdly, the derivation of new pronouns from old remained an active option in the evolution of Central Sudanic.

Seven PCS pronouns trace back to earlier Nilo-Saharan forms: *ini, *i, *kε, *'e, *yε, and *mu (< *wém) to PNS, and *nε possibly to PNS but certainly back to the prior Sudanic stage. An eighth and queried item, *sī, occurring as a personal pronoun only in Aja of the West branch of Central Sudanic, just possibly may have taken on that function in the preceding Sudanic era. But in view of the number of

complementary third person singular pronouns certainly reconstructible to PCS, it was most probably a separate innovation of Aja (see above).

Although it is tempting to link the PCS first person pronouns *(i)ma "I" and *ama "we" to PNS *ám "we (exclusive)," the existence of parallel PCS forms in *m in the second person argues against that exercise. Rather, it seems, PCS created a full, entirely new set of first and second person pronouns by affixing the respective PNS first and second person singular accusative roots, *ah and *ai (> PCS *e here), to the PNS pronominal base in *m (root 160), yielding *ma "I" and *me "you (sing.)." The plural first and second persons, *ama and *ame, were then derived from the singulars by prefixing the Central Sudanic *a- plural marker of pronouns. In the East branch of Central Sudanic, a still later innovation of parallel format, *ani "you (pl.)," derived by prefixation of the *a- pronominal plural to the older *ini root, has displaced *ame from use in several languages.

Kresh *aga* "we" can be ruled out as a parallel formation, composed of *a- plural plus an older singular pronoun root (*āɟá, root 437), because it is just one member of a full set of Kresh plural pronouns based on the indefinite pronominal stem *-ɟ- (from root 410) and of parallel VCV structure, in which V marks person. The second person plural of Kresh, *ígí*, adds PNS *í (root 1600), which in Central Sudanic languages widely marks second plural as well as singular; while Kresh *igi* "they" attaches the regular Kresh reflex of PCS *yɛh (root 1493) "they" as V.

The inherited PNS second person singular pronoun *ini long persisted in use alongside *me, since each root turns up in languages of both the West and East branches of Central Sudanic. The PNS plural second person *wém, in contrast, has lasted down to the present only in the Kresh-Aja division of West Central Sudanic, as *mu, and even there it was reanalyzed, probably because of its lack of the usual stem-initial Central Sudanic pronominal plural marker *a-, as a singular second person pronoun. Whether the reconstructible paired pronouns filled different semantic or functional slots in early Central Sudanic, alike to or different from those postulated for PNS, or were simply synonymous forms, remains to be determined.

Early Northern Sudanic pronominal developments

The pronoun arrays found in languages of the Northern Sudanic subbranch of Nilo-Saharan underwent a series of changes during the early stages of Northern Sudanic differentiation.

For the Northern Sudanic period, as already discussed, a further third person singular pronoun *sī, possibly though probably not already in use in the preceding Sudanic era, can clearly be postulated. It can be suggested in particular that *sī may have displaced PNS *kʰɛh as the topical third person pronoun in proto-Northern Sudanic, since that root dropped out entirely in the Kunama subgroup and has persisted only in subordinate or bound usages among the languages of the other primary subgroup of Northern Sudanic, Saharo-Sahelian.

Among the plural pronouns, the PNS first person plural root *ahil̩ dropped from use, leaving no certain trace among the Northern Sudanic languages. Two further first person plural roots, *ti (root 780)—probably originally of non-nominative function—and *kʰàhíh (root 1587)—which because of its seeming derivation from the singular first person topic pronoun, may have begun as the first person plural topic pronoun—do trace back to the proto-Northern Sudanic language, however. The origin of *ti is obscure. The initial segment may well be the PNS pronominal stem *t- (root 767), but if so its remaining element *i is certainly not a recognizable Nilo-Saharan marker of first person. This fact suggests that we may be dealing here with a very old root, containing derivational elements that had already become unproductive before the PNS era, and therefore a root of pre-PNS provenience, necessarily reconstructible to PNS as well. For that reason *ti has been given a queried placement among the PNS pronouns in Table 8.1 above. The evidence from the Saharan subgroup indicates that it may have taken on the role of an accusative pronoun by the Saharo-Sahelian stage (Table 8.5).

These considerations taken together indicate the existence in PNSud of the following array of pronouns (Table 8.4):

Table 8.4.   Proto-Northern Sudanic pronouns

	singular	*plural*
first person	*āɟá	*ánā (inclusive)
	*kʰāh (topic?)	*ám (exclusive)
	*wah (accusative)	*ti (subordinate inclusive?)
	*āh (subordinate)	(*θa ?) (subordinate exclusive?)
		*kʰàhíh (topic?)

Table 8.4.   Proto-Northern Sudanic pronouns (continued)

	singular	*plural*
second person	**īnɪ́*	**wém*
	*aina (topic?)	**wɛ́* (subordinate)
	*áì (accusative)	
	*í (subordinate)	
third person	**únū*	**yɛ́h*
	*sī (topic?)	
	*nɛh (accusative?)	
	*ɛ̄h (subordinate)	

Pronoun developments of the proto-Saharo-Sahelian stage

More extensive changes arose at the subsequent Saharo-Sahelian stage. The PNS singular second person pronoun **aina* dropped apparently from use, because it appears nowhere among the Saharo-Sahelian languages. Its position as the proposed second person singular emphatic or topic member in the system can be argued to have been taken over by **wém*, which itself was replaced as the normal nominative plural second person by a new formation **bì* "you (pl.)" (root 51). That **wém* shifted in application to singular second person in early Saharo-Sahelian is indicated, whatever its specific function, by its retention as a second person singular subject marker **m* in the Bodelean subgroup of the Saharan branch of Saharo-Sahelian (see root 1396 for this derivation). That it became the topical pronoun of that number and person is favored by two considerations—first, the two other markers of singular subject in Saharan, **k* in first person and **s* in third, both derive from the proposed Saharo-Sahelian topical pronouns of their respective persons (roots 1586 and 1154); and second, the existing PNS non-topical second person pronoun, **īnɪ́* (root 280), remained in use in Saharan.

In the third person, PNS **únū* was similarly replaced in Saharo-Sahelian as the nominative pronoun by **tʰay* (see root 792). And a new third person plural pronoun, **sa*, derivable from **sī* by substitution of **-a* pronominal plural marker (Chapter 7, affix 66; cf. Central Sudanic instances above of this affix), also dates to at least this period, if not to the earlier Northern Sudanic stage. Of rare and scattered retention (see under root 1154), it initially functioned in all likelihood as a non-nominative pronominal.

In addition, a new first person formation came into use, an independent first person singular pronoun **āhāy* (root 1584), composed of PNS **āh* plus the noun suffix in **y* (Chapter 6, affix 45). It did not immediately drive out of use either of the older first person nominative pronouns **āɗā* and **kʰāh*—the interlocking distributions of the three among the various Saharo-Sahelian subgroups make this conclusion inescapable (see reflexes under roots 437, 1584, and 1587). Even if one assumes different subclassifications of Saharo-Sahelian from that required by the considerations of Chapter 4, the best one can do is shorten the period the three coexisted in use. The usual application of **āhāy* as the regular independent nominative pronoun, and never as a denoter of topic, suggests it to have begun as simply a synonym of **āɗā*.

Another first person morpheme **θa* of unknown origin and probably, from the evidence of Saharan (root 1122), functioning as a subordinate pronomial in the grammar, was clearly present from the Saharo-Sahelian period onward. It may have been unspecified as to number, because it widely recurs as a marker and component in both singular and plural formations among the Saharo-Sahelian languages, but the weight of the evidence favors its originally having been a plural. Its entire underivability at present from any other Nilo-Saharan root raises the same question, as for the **ti* first person plural stem (root 780), of whether **θa* might indeed be a PNS root lost everywhere outside of the branching in which its reflexes still appear. It has thus been entered as a queried item in Tables 8.1 and 8.4 above.

More broadly, it can be proposed that proto-Saharo-Sahelian (PSS) innovated a new category of pronomials. The use of **sa* appears to reflect the beginning of a development, by the PSS stage, of independent accusative topic pronouns in the second and third person plural, previously a feature principally of the singular pronouns. The plural second person root **wɛ́* (root 1403) may also at this point have become more specifically an object pronoun, with a bound allomorph of reduced shape **u ~ *o* maintaining its other, subordinate functions, while **ti* and **θa* may similarly have taken on such roles in the first person plural.

Overall, the following system (Table 8.5) can be proposed for proto-Saharo-Sahelian:

Table 8.5. Proto-Saharo-Sahelian pronouns

	singular	plural
first person	*āɠā *āhāy *kʰāh (topic?) *wah (accusative?) *āh (subordinate?)	*ánā (inclusive) *ám (exclusive) *kʰàhíh (topic?) *ti (inclusive accusative?) *θa (exclusive accusative?)
second person	*īní *úm (topic?) *áì (accusative?) *i (subordinate?)	*bì *wɛ́ (accusative?) *ú ~ *ó (subordinate?)
third person	*tʰay *sī (topic?) *nɛh (accusative?) *ɛ̄h (subordinate?)	*yɛ́h *sa (subordinate?)

Pronomial changes during the Sahelian stage

During the immediately subsequent Sahelian period, several further rearrangements of the pronouns took place. For one, the third person singular *sī apparently dropped entirely from use as a pronoun throughout the Sahelian group. The most notable pronominal innovation of the Sahelian eras, however, was the conversion of an older Nilo-Saharan demonstrative root, *ŋgá (root 486), into a regular topicalizer of pronouns. It is still today productive in that role in Maba of the Maban branch of Sahelian, and it probably remained so into relatively recent times in Songay, and in Rub, Jebel, and perhaps other subdivisions of the Eastern Sahelian branch. The distribution of its reflexes (see examples in root 486) indicates that from the Trans-Sahel period onward the topicalizing of pronouns became its particular domain, extensible to plural as well as singular pronouns. Recurrent patterns of its attachment to stems indicate that *ŋgá was originally suffixed in first and second person formations but prefixed in third person. In Maban it became generalized to suffixal position, while in Ik of the Rub branch of Eastern Sahelian an opposite generalization developed, of prefixing it in all instances.

The older, distinctive second and third person singular roots provisionally attributable to the emphatic or topic category dropped out in proto-Sahelian. Only in the first person, especially the singular which was already overly well represented by independent pronouns in the early Sahelian languages, is the affixation of *ŋgá almost never attested (two lone, very late exceptions in singular first person are known, in proto-Daju, as seen in root 1583, and in one Jebel language, as seen in root 486); and only in that person did a distinctive emphatic root tend to be retained. Entirely lacking from For, but present all through the rest of Sahelian, this systemic change can be proposed as a marker of the provisional division of Sahelian into two coordinate branches, one composed of For alone and the second, Trans-Sahel, comprising the rest of the group (Songay, Maban, and Eastern Sahelian).

The following array of pronouns (Table 8.6) can be proposed, thus, to have made up the proto-Sahelian system, with the use of an added topical marker *ŋgá coming into use at the immediately subsequent proto-Trans-Sahel stage:

Table 8.6. Proto-Sahelian pronouns

	singular	plural
first person	*āɠā *āhāy *kʰāh (topic?) *wah (accusative?) *āh (subordinate?)	*ánā (inclusive) *ám (exclusive) *kʰìh (topic?) *ti (accusative inclusive?) *θa (accusative exclusive?)
second person	*īní *áì (accusative?) *í (subordinate?)	*bì *wɛ́ (accusative?) *ú (subordinate?)
third person	*tʰay *nɛh (accusative?) *ɛ̄h (subordinate?)	*yɛ́h *sa (accusative?)

The evidence identifies only two distinctive emphatic nominative topic pronoun roots, both in the first person, for proto-Sahelian; and even one of them, *kʰíh (< NSud *kʰàhíh), was displaced into a subordinate role, as a first person plural subject marker of verbs, in languages of the proposed Trans-Sahel subgroup. And there is no reason

to-doubt the validity of this picture of the early Sahelian system. The actual situation in late Sahelian and the immediate post-Sahelian eras, as already described just above, is likely to have been one in which an easily reversible combining of *ŋgá (root 486) with various nominative independent pronouns marked topicality in all except first singular. The disappearance of distinct topic roots in the second and third persons singular was accompanied, in other words, by the development of an affixing process capable of extending topicality to a new domain not previously affected, the plural subject pronouns of second and third person. The restriction of *kʰíh (< *kʰàhíh) entirely to bound usages, except in For—in which it evolved into the general independent pronoun for "we"—similarly can be argued to reflect its having been replaced as a topic pronoun, after the splitting off of pre-For from the rest of the Sahelian group, by usages based on the affixation of *ŋgá.

Major pronoun developments after the Sahelian stage

The system of pronouns reconstructed in Table 8.6 evolved in a variety of directions in the different descendant branchings of Sahelian.

The third person continued, as commonly in the world's languages, to be the locus of the most change. The Saharo-Sahelian root *tʰay persisted in Maban as the third person singular pronoun; but in Songay its place was taken by *ɛh, and in For by a new formation, underlying *yiɛh (see root 1468). In early Eastern Sahelian, in contrast, *nɛh in the shape *anɛh, prefixed with the PNS *a- attributive (see root 1590), probably became the primary independent third person pronoun form, while *tʰay was relegated to subordinate roles, becoming a possessive, for instance, in Nara of Astaboran and perhaps already in proto-Astaboran.

Following the proto-Eastern Sahelian (PESah) period, a variety of new third person pronoun developments took place. Independently in both Nubian and Nara *tʰay regained, by separate nominalizing suffixations, its role as the independent pronoun of the third person singular. And in both Nara and proto-Nubian, new plural third person pronouns were then in turn derived from these new third person singulars, presumably separately replacing PNS *yɛh (see root 792 for these formations). In proto-Rub, in contrast, a different PNS demonstrative, *tʰï (root 907), displaced PESah *anɛh as the third person singular independent pronoun; but PNS *yɛh, with the addition of a redundant plural marking in *t, persisted as the third person plural pronoun (see root 1493). The older PNS *sï demonstrative pronoun

(root 1154) also gave rise to a new personal pronoun. The Tama-Sungor language of the Taman subgroup of Western Astaboran, taking the distinctive course of adding the PNS *a- attributive nominal prefix to *sï, produced singular and plural third person pronouns that must be understood as formations separate and independent from the early Northern Sudanic root *si "he, she, it" (see above and root 1154). An alternative shape *inɛh for the PESah third person singular pronoun *anɛh arose in proto-Kir-Abbaian (PKA), its substitution of initial *i probably coming through analogy to the shape *iní of the second person singular root. A further pronoun *ɲinɛ—visibly derivable from Sahelian *ŋgá topic pronoun formative plus the new shape *inɛ (root 1590), and found in Bertha and Nilotic—can from its derivation and distribution be reconstructed as the PKA third person singular pronoun of topicality. In the Daju and Nilotic divisions of the Kir subgroup of Kir-Abbaian can be found still another innovated third person singular pronoun, *tʰɛ, which joins the PNS demonstrative *tʰï (independently used for "he, she, it" in proto-Rub) to PNS *ɛh (root 1588) in its Kir shape *ɛ.

In the second person singular, the post-proto-Sahelian trend was toward simplification of pronominal complexities. The language For maintained *i in its subordinate functions, but replaced both *ïní and *áì with a single new independent pronoun, *ji (root 322). In Maban a different new root, *mai (see root 1601), built on *áì, similarly drove *ïní from use. In Songay, in contrast, *ïní has been retained, as *ní (with the regular Songay sound shift, V > Ø /#_CV).

All three roots *ïní, *áì, and *í persisted into PESah. They may have been supplemented by a new topic member of the set, which combined second person *í with the self-standing Eastern Sahelian reflex *ŋá of the *ŋgá topicalizer, becoming lexicalized as *iŋa (see root 486). Thereafter in proto-Astaboran, *ïní dropped entirely from use, with *áì becoming apparently the regular first person singular independent pronoun but *iŋa and *í still retaining their respective usages. Later, in Taman of Western Astaboran *í displaced *áì as the sole singular independent pronoun, and in a derived form *ai "you (pl.)," adding *a- to *í as a plural marker (affix 64, as in Saharo-Sahelian *sa "they" above and the PCS *a- plural prefix of pronouns), became the new second person plural pronoun, replacing the PESah root *wɛ́. In Nara, the old PNS *áì "you (sing.)" was instead displaced from its proto-Astaboran role by *iŋa, the proposed PESah topic pronoun of singular second person.

In PKA, in contrast, *ïní, *iŋa, and *í were retained while *áì was deleted from the system. In Kir-Abbaian on the whole, *ïní has remained the primary independent pronoun; but in a few individual in-

stances, i.e., in Lotuko-Maa of Nilotic, in the Nyimang subgroup, and in a few Jebel languages, *í or derivations from *í have replaced *īní. In Southern Nilotic the topic form *iŋa, in a vocalically analogized shape *iŋi, took over the functions of *īní.

A still different history characterized the third branch of Eastern Sahelian, Rub. The four Eastern Sahelian roots *īní, *iŋa, *áì, and *í all dropped out, and the function of singular second person independent pronoun was taken over by the former plural second person pronoun *bì (root 51). Pre-proto-Rub also created another second pronoun *bì (root 51). Pre-proto-Rub also created another second singular root *(i)di, combining the *i second person root (1600) with the old PNS pronominal root *nd- (root 234). From its composition it is likely initially to been innovated to fill the second person topic slot in the system. But by proto-Rub times it had been relegated to the subordinate role of second person verb subject marker (see root 234).

In the first person singular, too, the tendency in subsequent eras was toward simplification. In Songay, reflexes of both *áɗá and *āhāy remain in use down to the present, but with *áɗá, in the shape *agey* (stem plus PNS *y noun suffix), having replaced *kʰáh in the role of emphatic (or topicalizing) pronoun. The For language simplified its system to just *ka*, its reflex of PNS *kʰáh, in both subject and object positions. In subordinate pronominal contexts, it appears to use a reduced form of PNS *wah (root 1374). Maban entirely replaced all three pronouns with a single new first person *ama (see root 161 for its proposed source in PNS *ám "we (exclusive)").

The several Sahelian first person singular roots, *áɗá, *kʰáh, and *āhāy, all lasted at least into PESah. Thereafter in one daughter language of PESah, proto-Astaboran, *kʰáh apparently dropped from use while both *áɗá and *āhāy remained. In a second daughter of PESah, proto-Rub (PR), it was *kʰáh and *āhāy, but not *áɗá, that were preserved. The various subgroups of Astaboran and Rub then further simplified their inherited pairings by separately dropping one of the two in favor of the other—Nara of Astaboran, for instance, choosing to retain its reflex of *áɗá, but Nubian keeping *āhāy (as *ày), and Western Rub selecting *āhāy while the Ik (Eastern Rub) stayed with *kʰáh (see roots 437, 1584, and 1586 for these distributions).

In the third daughter language of PESah, i.e., PKA, *āhāy alone was preserved. A new first person singular pronoun, *ane, *ani arose in its Kir subgroup, probably as the topic member for its person and number, with *ahay continuing as the regular independent nominative. It is tempting to derive Kir *ane, *ani from a resurfacing of the PNS *-an, *-na marking of first person singular (root 1599). But the full form of the pronoun, affirmed in its Surmic and Nilotic occurrences, implies its specific derivation from *āh (root 1583) plus the PNS *ne

demonstrative root in its alternate Kir-Abbaian shapes, *ne, *ni (root 263).

If we lacked evidence for the rest of the Jebel branch of Kir-Abbaian, we might think that Gaam *āān* "I" would date the innovation of *ane, *ani back to PKA. Two facts are clear, however, once the wider Jebel data are taken account of: (1) everywhere else in Jebel only reflexes of *āy (< *āhāy) and *āh are present in the first person singular; and (2) final *-n is a regular and uniquely Gaam addition to each and every one of its independent pronouns, both singular and plural. The shape *āān* is therefore the expected uniquely Gaam outcome, as its vowel length also requires, built on underlying *āh or *āy, each attested elsewhere in the Western subgroup of Jebel (see roots 1583 and 1584).

In the first and second person plural positions, a considerable variety of new usages arose after the proto-Sahelian era. As noted above, the old root *kʰáhíh (root 1587), suggested to have originated as a first person plural topic pronoun, was preserved in For as the general independent pronoun of its person and number, but elsewhere in Sahelian survived only in a subordinate role, as a bound subject marker of first person plural. Maba and Masalit derived new first person plural pronouns from their independent first singular forms: Maba *maŋ* by addition of the *-ŋ plural suffix of all Maba plural pronouns to Maba *ma* "I" (root 161), and Masalit *mîí* by addition of the *-i plural to proto-Maban *(a)ma (root 161). In Maban a new plural second person pronoun *kʰai (see root 1601), apparently based on the old NS singular second person root *áì, was innovated, too. In both the For and Maban branches of Sahelian, it should be noted, the PNS distinction between exclusive and inclusive was separately eliminated.

PESah itself apparently innovated two new plural pronoun roots: (1) *aɗwe "we," a pluralizing of *áɗá "I" (by addition of an allomorph of the old Nilo-Saharan plural in *-wa, affix 60), attested by Kir-Abbaian and Rub reflexes (see root 437); and (2) *iɗwe "you (pl.)," an analogous formation to *aɗwe, but with the second person form *í substituted for first person *ā (< *āh), attested in Kir-Abbaian and Astaboran (root 439). Coexisting as they did in PESah with regular independent first person exclusive and inclusive and second person plural pronouns that had been retained from proto-Sahelian, their likely original function would have been as the equivalent emphatic or topic pronouns of their respective persons.

The distinction between inclusive and exclusive first person was preserved at first in the Rub and Kir-Abbaian branches of Eastern Sahelian, but probably lost early in Astaboran. Just what proto-Astaboran did keep as its independent pronoun of the first plural is not enn-

tirely certain. However, the Western Astaboran semantic extension of the old PNS bound first person singular marker of verbs, *-na, *-an, to include both singular and plural connotations suggests that *ánā most probably filled that slot in the proto-Astaboran pronoun system. In proto-Western Astaboran (PWAstab), it can be proposed, *ánā was then replaced as the independent first person plural pronoun by *wai (for which see root 1374), surviving only in bound usages where it fell together with the phonetically resemblant Western Astaboran reflexes of the PNS *-an, *-na first person singular. Distinctive inclusive and exclusive first person plural pronouns are present in modern-day Midob of Nubian, but appear there to form a new derivation of this contrast (see roots 437 and 793).

In Rub the older Nilo-Saharan first person plural roots *ám and *ánā long remained in use. The pronoun *ánā continues to form the base element in the first person plural inclusive pronoun and verb suffix in Soo of Rub (root 279). Similarly, a reflex of the PNS first person exclusive *ám is still evident in Ik of Rub (root 162).

In Kir-Abbaian, in contrast, the older Nilo-Saharan inclusive and exclusive pronoun roots generally dropped from use or were significantly modified in shape. In PKA a new plural exclusive formation, *aθa, based on the older first person marker *θa (see root 1122), apparently displaced PNS *ám from use. Then, in the Kir subbranch of Kir-Abbaian, the first person singular root *wah was prefixed to *ánā to form a new first plural inclusive root *wan-. Daju has retained that particular meaning, but in proto-Nilotic this derived form took on the generalized sense "we" (see root 279). In the Kir group the pronoun *aθa, in parallel to the developments affecting *ánā, also added the prefix element *w-, presumably the *wah first person root, creating a new shape *waθ- "we (excl.)." This form is attested today only from Daju (see root 1374) but is so parallel in structure to Kir *wan "we (incl.)" as surely to have been derived at the same era.

The overall history of the early Eastern Sahelian, Kir-Abbaian, and Rub pronoun systems can be summarized by a series of tables (Tables 8.7–8.11). One notable outcome in each of the branches of Eastern Sahelian was the dropping of distinctive independent accusative pronouns. A second general trend, usually later and subgroup-specific in its realizations, was toward loss of the topic distinction. Note that the later forms of particular pronominal roots may differ in shape from their earlier representations; such differences of course reflect sound changes that took place in the evolution of particular subgroups of the family (for which see Chapters 2 and 3).

Table 8.7. Proto-Eastern Sahelian pronouns

	singular	plural
first person	*āɗā *āhāy *kʰāh (topic?) *wah (accusative?) *āh (subordinate)	*ánā (inclusive) *ám (exclusive) *aɗwe (topic?) *θa (subordinate)
second person	*īní *iŋa (?) (topic) *ái (accusative?) *í (subordinate)	*bì *iɗwe (topic?) *wɛ́ (accusative?) *ú (subordinate)
third person	*anɛh *tʰay (accusative?) *ɛh (subordinate)	*yɛ́h *sa (accusative?)

Table 8.8. Proto-Astaboran pronouns

	singular	plural
first person	*āhāy *āɗā (topic?) *wah (subordinate)	*ánā (?) *s- (subordinate) 　(< *θa)
second person	*īní *iŋa (topic) *ái (subordinate)	*wɛ́ (*ú ?) (subordinate)
third person	*anɛh *tʰay (subordinate)	(?) *sa (subordinate)

Table 8.9. Proto-Kir-Abbaian pronouns

	singular	plural
first person	*āy *ā (subordinate)	*ánā (inclusive) *aθa (exclusive) *aɗwe (topic?) *wa (subordinate)

Table 8.9.   Proto-Kir-Abbaian pronouns (continued)

	singular	*plural*
second person	*īní *iŋa (topic) *í (subordinate)	*wɛ́ *iɗwe (topic?) *ú (subordinate)
third person	*anɛ, *inɛ *ŋinɛ (topic) *ɛ̄ (subordinate)	(?) *sa (subordinate)

Table 8.10.   Proto-Kir pronouns

	singular	*plural*
first person	*āy *ane, *ani (topic?) *ā (subordinate)	*wan (inclusive) *waθ (exclusive) *agwe (topic?) *a (subordinate)
second person	*īní *iŋa (topic) *í (subordinate)	*wɛ́ *igwe (topic?) *í (subordinate)
third person	*anɛ (Nyimang); *inɛ (SNil) *tʰɛ (Daju, Nilotic) *ŋinɛ (topic) *ɛ̄ (subordinate)	(?) *sa (subordinate)

Table 8.11.   Pre-proto-Rub pronouns

	singular	*plural*
first person	*áy *káh (topic?)	*Vma (?) (exclusive) *Vna (?) (inclusive) *Vɗo (topic?) *-s- (subordinate, < *θa)

Table 8.11.   Pre-proto-Rub pronouns (continued)

	singular	*plural*
second person	*bì *(i)di (topic?)	*bìt
third person	*ící	*ít

Additional pronoun developments

A number of other pronominal innovations that are restricted to particular languages or narrower subgroups of Nilo-Saharan provide further substantiation of the relationships within the family. They have not been dealt with here, because they emerged after the main developments germane to early Nilo-Saharan pronoun history and raise no issues with that reconstruction. They are not ignored in this work but rather have been listed and analyzed under the relevant root entries in the Etymological Dictionary. These include several pronouns from Central Sudanic subgroups, Saharan subgroups, Astaboran, Bertha, Temein, and Nilotic, among others (e.g., proto-Western Astaboran *wai "we" in root 1374).

One of the other pronoun sets, that of Gumuz, although covered under various entries in the Etymological Dictionary, does require further discussion here, however. Pre-proto-Gumuz, in greatly reformulating the PNS pronomial system, produced the interesting situation in which the first person singular pronoun derives *seemingly* by direct conversion of a PNS demonstrative pronomial root (189) *unmarked* for person, whereas the remaining personal pronouns clearly embed a specific PNS person marker in their structures. The obscuring factor is that each Gumuz independent pronoun has a canonical form *a-(V)C(V)-a (reduplicated in the third person plural), where *(V)C(V) is the person marking element and final -a is the required Gumuz word-final element in nominals (see absolutive marker, Chapter 7, affix 82).

A simple three-step history accounts for all the Gumuz pronoun shapes. First, to an existing body of regularly derivable and visibly person-marked pronouns—see root 160 for the third person plural pronoun, root 1377 for the second person singular, root 1369 for the third person singular, roots 1374 and 1585 for the first person plurals, and root 1577 for the second person plural—pre-proto-Gumuz initially added one new first person pronoun, *aɗ- "I," formed by prefixing the PNS *ah first person pronomial to a PNS demonstrative root

(189). That particular form of derivation suggests that it began as a topic pronoun ("that-me"). The third singular, the second plural, and the first plural exclusive pronouns also combine person marking with an article or demonstrative root and so similarly can be argued to have begun as topic pronouns (see roots 1369, 1600, and 1374 respectively).

Second, the early pre-proto-Gumuz system proceeded to delete topic/non-topic distinctions in pronouns, and the previously topic pronouns took over the general function of independent pronomials. With addition of the required nominal final *-a (PNS absolutive, affix 82 in Chapter 7), the resulting pre-proto-Gumuz system presented the following surface shapes (Table 8.12):

Table 8.12. Pre-proto-Gumuz pronouns

	singular	*plural*
first person	*aɗa (< *a-ɗ-a)	*aila (<*ahil-a) (excl.)
		*kwa (<*k-wah-a) (incl.)
second person	*oma (< *wém-a)	*kia (*k-i-a)
third person	*kʰwa (< *kʰ-wa-a)	*mama

Finally, at the third stage, the format *a- + stem + *-a, seen in the first person singular and one of the first person plural pronouns, was generalized to the remainder of the system by addition of the PNS *a- nominal prefix (affix 54 in Chapter 6), yielding the present-day Gumuz pronomial system. (In the third person plural the initial *a- apparently subsequently translated into a lengthened initial consonant.) The generalization of this format to all independent pronouns obscured, in consequence, the distinct origin of initial *a- in the two first person pronouns, *aɗa and *aila, as a marker of first person. These developments together yielded the system found today in Gumuz (Table 8.13):

Table 8.13. Present-day Gumuz pronouns

	singular	*plural*
first person	aɗa	aila (excl.)
		akwa (*a-kwa) (incl.)
second person	ama (< *a-oma)	aca (< *a-kia)
third person	ah(ʷo) (< *a-kʰwa)	mmama (< *a-mama)

CHAPTER 9
INTRODUCTION TO THE NILO-SAHARAN ETYMOLOGICAL DICTIONARY

The remaining portion of this work is taken up with an Etymological Dictionary of Nilo-Saharan roots. More than 1,600 roots are presented, a great many certainly reconstructible back to proto-Nilo-Saharan (PNS) and the rest traceable to other very early nodes in the scheme of Nilo-Saharan relationship (see Table 4.2). The supporting data run to around 10,000 primary items, comprised of the specific reflexes of roots, cited from particular languages, as well as numerous intermediate reconstructed forms (from proto-Nilotic, proto-Koman, proto-Central Sudanic (PCS), proto-Nubian, etc.). And the intermediate reconstructions themselves of course represent thousands of additional lexical citations, which appear in either other published or not as yet published works of reconstruction (such as Ehret MS) or are selectively cited here in the Etymological Dictionary in parentheses after the particular intermediate root shape they demonstate.

The roots follow a kind of alphabetical ordering. The first consonant of the root (not necessarily the initial segment) provides the first criterion of its placement in the Etymological Dictionary. The "alphabetical" order used here is actually a phonological-system-based sequence (see Chapter 2 for this system): ɓ, b, mb, m, ɗ, ɗ, d, nd, n, ɗ, d, nɗ, nð, ɲ, ɟ, g, ŋg, ŋ, p, pʰ, p', *ʈ, ʈʰ, ʈ', t, tʰ, t', ʈ, ʈʰ, ʈ', k, kʰ, k', θ, s, ʂ, z, r, l, ḷ, w, 'w, y, 'y, and h.

If two CV or CVC roots have the same first consonant, they are next ordered according to the following vowel, in a more properly alphabetic sequence, a, e, ɛ, i, o, ɔ, and u. If they are alike in both the first consonant and the following vowel, putting them in sequence will then depend on their second consonant, if any, ordered according to a modified alphabetic sequence: b, ɓ, d, ɗ, ɗ, ɗ, ɗ, g, ɟ, h, k, kʰ, k', l, ḷ, m, mb, n, nd, nɗ, ɲ, ŋ, ŋg, p, pʰ, p', r, s, ʂ, θ, t, tʰ, t', ʈ, ʈʰ, ʈ', tʰ, t', w, 'w, y, 'y, and z. If two roots are identical in their segments, except for vowel quantity, the root with a short vowel is put first and the root with a long vowel second.

Vowel-initial roots of the structure VC, VCV, or VCVC are placed at the end of the section defined by their first C. In that posi-

tion, they are ordered first by their initial vowel and thereafter by their remaining consonants and vowels according to the patterns described for CV and CVC roots. On a few occasions an old extended root of the form $*C_1VC(V)$, where C_1 is a prefix added to a coexisting Nilo-Saharan root $*VC(V)$, has been listed, out of the usual order, following the root from which it derives (e.g., roots 1291, 1589, and 1590). This tack has been taken in those instances because it puts the derived and base forms close to each other in the Dictionary and thus easier to examine together.

Each of the 1,606 reconstructed roots is presented according to a particular format. At the head of each root entry and its supporting data comes a first line composed of four successive parts:

    1. the number assigned to the root;
    2. the phonological reconstruction of the root (marked by an asterisk);
    3. the meaning ascribed to the root (given in quotation marks); and, if needed,
    4. a derivation of the root from another Nilo-Saharan root (given in brackets).

Below this first line come anywhere from two or three up to twenty or thirty further sets of data, each containing a particular attestation of a root in a particular language, along with other appertaining materials. These data appear in the order in which the attesting languages or language groups appear on the Nilo-Saharan subclassification in Chapter 4 (Table 4.2), beginning with Uduk of Koman and proceeding through to Ik of Rub. Each entry at its maximum consists of five parts. The first four kinds of information all appear in the first column of the entry; the fifth kind occupies the second column:

    1. First, the names of the language subgroup and the particular language from which the attestation is drawn are given (the names of languages are written in all capital letters, while subgroup or proto-language names are not).
    2. Following the subgroup and language names, the actually attested reflex of the root appears; this is usually a word but sometimes an affix. Where the reflex is itself a subgroup's reconstructed root word, it is of course preceded by an asterisk.
    3. Next comes the meaning of the word or affix (given in quotation marks) or the function of the affix (bracketed by << and >>).
    4. Then, if the reflex itself is a previously unpublished root reconstruction of a particular subgroup, there will next follow a selection

of its modern-day reflexes, drawn from particular languages of the subgroup in question; these are cited in parentheses following the meaning.
    5. Finally, any derivational morphology of the attestation, along with cross-references and a semantic explanation, if needed (all given in brackets), occur at the end of the entry.

Certain word-final vowels attached to noun stems in column one have commonly not been given a specific morphological explanation in the second column of an entry. These instances are of four kinds.

First, in Gumuz and Kunama, all nouns in citation form occur with word-final -a, apparently a reflex of the PNS *-a absolutive case suffix (affix 82 in Chapter 7). In both languages, in other words, final -a does not reflect a derivational operation and so does not require separate mention in the Etymological Dictionary. In both languages but especially in Kunama, it should be noted, the attachment of the final -a has sometimes obscured the original final stem vowel in vowel-final roots.

A second kind of non-derivational noun-final V appears in the Sahelian languages. The Sahelian division of the Nilo-Saharan family early on developed a set of noun singular markers of the shape *-V (see Chapter 7, affixes 70-74). Unless otherwise noted, the nouns cited in the first column are normally presented in their singular form; and so whenever no specific explanation has been given in the second column for the noun-final vowel in a Sahelian language, it has been presumed that this vowel derives from one or another of those singular suffixes. The citations of nouns from Songay and from Ik of Rub especially frequently evince this characteristic, but it appears not uncommonly in the data from a number of other Sahelian languages as well.

The third and fourth situations in which final vowels are not specifically explained turn up respectively in Songay and Kunama.

At some point in the evolution of Songay, a rule arose that required most words to end in a vowel. Pre-Songay at that point already had probably developed terminal vowels in a large proportion of its words, and in perhaps nearly all its nouns—these having been created by the loss of final *h in verbs and nominals with *-Vh suffixation, the diphthongization of final *-Vb to /-Vw/ (see Chapter 2), the adding of the noun singular markers of the shape -V, and so forth. Songay then generalized this condition to most of its remaining consonant-final verbs by adding a terminal vowel that duplicated the preceding stem vowel. The lack of an explanation in the second column of the Etymological Dictionary for a stem-final vowel in the Songay verb entry in

the first column thus means that the vowel in that instance can be presumed to derive from the operation of this phonological constraint.

In the Kunama dictionary (Castelnuovo 1950) a general feature of verbs appears to be their possession of a terminal vowel. If that vowel is not identical with the stem vowel, then it is nearly always either -*i* , -*u* , or -*a* . A two-step process can be suggested to have been at work here—providing these terminal vowels are not artefacts of recording. The vowel trio can be suggested to be reflexes of the the respective Nilo-Saharan verb extensions of directional import, *-i andative, *-uh venitive, and *-a dispunctive. At some point in the evolution of Kunama, so many verbs had taken up these affixes that analogical pressures intervened, pushing the system toward generalization of this pattern to all verbs, specifically by adding a terminal vowel identical to the stem vowel wherever -*i* , -*u* , or -*a* had not already been suffixed. But since the significance of these vowels remains still very unclear, such verb endings have in general been left unremarked upon, except in a few cases where they seemed still today to accompany a clear andative, venitive, or dispunctive connotation (see also Chapter 5 on this point).

Oftentimes a further commentary and discussion on the historical developments among the various reflexes of a particular root, or on etymological issues, are necessary. In such instances a final "note" is appended, often with cross-references to related data elsewhere in the Etymological Dictionary, following the last set of the supporting data for the root reconstruction.

A great variety of works have been drawn on in assembling these data. The pivotal resources have been a number of relatively well recorded languages, and fortunately for the enterprise of reconstruction most of the major subgroupings of Nilo-Saharan are represented by at least one language from among this number:

1. **Uduk** (of Koman): (Beam and Cridland 1970). This work is surprisingly reliable in both segmental and suprasegmental representations (as shown by Thelwall 1983), and provides extensive vocabulary evidence.

2. The Central Sudanic evidence draws on the extensive reconstructions of PCS vocabulary (more than 1500 roots) and morphology contained in Ehret, MS, as well as the numerous sources listed in the references to that work, most notably, among many others, Crazzolara 1960, Larochette 1958, Mertens 1987, and Vorbichler 1965 and 1971.

3. **Kunama**: (Castelnuovo 1950). This book in the extent and variety of its lexicon fully deserves being called a dictionary. It does not, however, distinguish tone or vowel length. A very important new work on Kunama (Bender 1998b), which does mark these features,

did not become available to the writer in time for its findings to be incorporated here.

4. **Kanuri** (Saharan group): Lukas 1937 and Hutchison 1981. Hutchison follows an orthography that does not distinguish the two Kanuri vowels /a/ and /ɑ/. Lukas does, fortunately, distinguish the two, allowing their different underlying PNS vowel sources to be identified. To alert the reader to data entries where the two vowels are conflated, words drawn from Hutchison that contain his **a** have been given the notation "(H)." Entries containing /a/ that do not bear that notation, or that have /ɑ/, come from Lukas. The ideophones cited in the Etymological Dictionary are all taken from Hutchison, and it was therefore not necessary to add the notation "(H)" in those cases.

5. **For**: von Funck 1986. Additional materials, reanalyzed in the light of von Funck's findings, have been drawn from Beaton 1968. These latter data are followed by the notation "(B)."

6. **Songay**: (Ducroz and Charles 1978). The extensive lexical materials of this source are drawn from the Zerma dialect and thus show particular features, such as the collapsing of proto-Songay *ay and *ey as /ey/ word-final and the palatalization of velars in front-vowel environments, that often have not taken place in more easterly dialects.

7. **Maba** (Maban group): Trenga 1947 and Lukas 1952. The materials from Lukas can be identified either by their having tone marking, lacking in Trenga, or by the notation "(L)."

8. **Nubian:** Two languages provide the bulk of the lexical evidence for this subgroup, **Dongolawi** (Armbruster 1960 and 1965) and **Diling** (Kauczor 1920), although several other Nubian languages are represented in the cited data. The proto-Nubian reconstructed forms required by the wider comparative data of Nilo-Saharan revise, and at some points indeed differ sharply from, those presented in Bechhaus-Gerst 1984/5.

9. **Tama** (Taman subgroup): The field notes of James Dickins, kindly provided to the writer by Robin Thelwall, proved very valuable.

10. **Gaam** (Jebel subgroup of Kir-Abbaian): Bender and Ayre 1980.

11. **Bertha** (Jebel subgroup of Kir-Abbaian): Bender 1989a. The notations "(M)," "(F)," and "(U)" refer to different Bertha dialects, as indicated in Bender, respectively Mayu, Fadasi, and Undu. A fourth sign "(W)" identifies materials on Bertha published in Bender 1971 under the name "Wetawit."

12. Daju (Kir subgroup of Kir-Abbaian): Thelwall 1981.

13. Didinga-Murle (Surmic subgroup of Kir-Abbaian): Tucker 1953, with some supplementation from Driberg 1931.

14. Nilotic: A number of sources stand out—**Ocolo**: Heasty 1937; **Maasai**: Tucker and ole Mpaayei 1955; Eastern Nilotic as a whole: Vossen 1982; Southern Nilotic: Rottland 1982; Ehret, field collections of Datoga and Kalenjin data. The oral dental consonants of Western Nilotic are consistently represented in the data here by the symbols ṯ and ḏ. In Ocolo words, the vowel notations of Heasty (1937) are followed.

15. Rub: Heine 1974/5, 1975/6, 1976, and 1983; field collections of **Soo** data by the writer. Other field collections for **Soo** by John Weatherby, followed by the notation "(W)," were of value, although failing to distinguish implosion and not marking tone. A revise and modified version of Heine 1983 has now been published (as Heine 1999). This book adds new words and, along with Carlin's (1993) work on Soo, provides much further confirmation of the regular sound correspondences of the Rub group with the rest of Nilo-Saharan.

A great many additional sources provide the evidence for Gumuz, and other of the Koman languages (the principal materials on Gule are, of course, from the collections of Lionel Bender); Zaghawa, Berti, and Daza-Teda of Saharan; other members of the Taman and Nubian sub-groups, along with Nara, of Astaboran; Aka, Kelo, and Molo of the Jebel branch of Kir-Abbaian; Nyimang; Temein; and the Daju, Surmic, and Nilotic language groups. The most important of these include Tucker and Bryan 1966 (especially useful in it are data from the un-published studies of Roland Stevenson); Bender 1971; numerous arti-cles by different scholars, including Bender himself, to be found in Bender (ed.) 1976, 1983c, 1989c, and 1991; and other articles in Schadeberg and Bender 1981. Further resources drawn upon, but not cited directly here can be found listed in the bibliographies to Tucker and Bryan 1955. On the whole the manuscript of this book was com-pleted some time ago. Nevertheless some materials from the papers, presented at the 1998 Nilo-Saharan conference in Vienna, of Torben Anderson (on Mabaan), Regina Blass, Mamane Elhadj Oumar, and Ousmane Boukar (on Tubu), and of Leoma Gilley and Saman Frajalla (on Burun), and also from Bender 1997 and 1998a and Heine 1999, have been used here.

Nilo-Saharan Etymological Dictionary

1. *ɓà OR *ɓàː "part"

Koman: UDUK ɓàn "part, piece"	[stem plus NS *n n. suff.]
CSud: PCS *ɓa "occasion"	
SONGAY ɓàa "part"	[stem plus NS *-ah n. suff.? (*baha ?)]
Maban: MABA ɓa-aroŋ- "to divide, apportion"	[-roŋ- "to do"]

2. *ɓā̀ "to soak (intr.), become drenched"

CSud: PCS *ɓa "rain"	
FOR bàà̠n "stream"	[stem plus NS *ɲ n. suff.]
FOR bàù, PL. bàùtá "pool"	[stem plus NS *-uh or *w n. suff.]
Astab: Nub: DONGOLAWI ɓaː "plot of irrigable ground with edges raised to hold water"	[stem plus NS *ah n. deriv. suff.?]
Kir-Abb: GAAM ɓàì "marsh"	[stem plus NS *'y n. deriv. suff.]
Kir-Abb: West Daju *ɓa(y)- "to swim" (SHATT ɓaya, LIGURI ɓa)	[stem plus NS *'y ess.-act.
Kir-Abb: Surmic: DM: MURLE ɓaːyiδ- "to swim"	[stem plus NS *'y ess.-act. plus probably NS *s prog.]
Kir-Abb: Nil: WNil: OCOLO ɓay "to overflow"	[stem plus NS *'y ess.-act.
Kir-Abb: Nil: ENil: TESO -baun "to be soaked"	[stem plus Ateker ven.]
Rub: IK ɪáɓ- "to be cold"	[*i- v. class pref. plus stem]

Kir semantic and morphological innovation: derivation of a word for "to swim" by addition of the *'y essive-active extension to the verb root.

3. *ɓad "wide, broad"

CSud: ECS *ɓara "wide, flat, thin"	[stem plus CSud *-rV modif. suff.]
Astab: Taman: TAMA ɓarag "old"	[stem plus NS *k adj. suff.]
Kir-Abb: PNil *bar "long" (PWNil *bar "long"; SNil: Kalenjin *paraːy "wide")	[SNil: stem plus NS *y n./adj. suff.]
Rub: IK [bada "large": LOAN (expected *ɓada)]	

4. *ɓàp OR *ɓāp "to nag"

Koman: UDUK ɓāpá' "nagger"	[stem plus NS *-Vh n. deriv. suff.]
KUNAMA babba- "to scold, grumble, roar"	[gemin. as intens./iter.]
Kir-Abb: Nil: WNil: OCOLO bap "to beg"	

5. *ɓàpʰ "to become thick, fat"

Koman: UDUK ɓāpʰáɓāpʰ "thick or fat"	[redup. stem]
Sah: KANURI bə̀f "to ripen, become mature"	
Kir-Abb: Nil: WNil: OCOLO bap "to collapse, dry up (inside of gourd)"	

Probable Saharo-Sahelian innovation: shift from a concrete action (increasing in size) to the signi-fication of that action (maturing, ripening). The Ocolo verb has undergone a further shift, to refer to a development that follows upon the ripening.

6. *ɓàwt̠' OR *ɓāwt̠' "to burn (intr.)"

Koman: UDUK ɓāt̠', ɓat̠ad "hot"	[2nd entry: stem plus NS *ɬ adj. suff.]
KUNAMA boda "morning star"	

Kir-Abb: BERTHA [baːɗíʼ "hot": LOAN from
Koman (shows *aw > *aa as in Uduk; also /ɗ/ <
NS *ṭʼ as sometimes in Uduk)]
Kir-Abb: Daju: LIGURI ɓod- "to cook"

7. *ɓé "hill"
Koman: KOMO ɓe "mountain"
CSud: MM: MADI ɓé "hill"
Kir-Abb: Surmic: S.Surmic *ɓe "stone, hill"

8. *ɓeɓ "bark"
Koman: GUMUZ *ɓeɓa "bark"
CSud: ECS *ɓe "husk, rind, shell, bark"
Kir-Abb: C.Jebel: AKA [bəəb "bark": LOAN
(expected short V), probably from Gumuz]

9. *ɓèl "to hit with implement"
CSud: ECS *ɓe "to shoot (bow)"
FOR belgi "hammer (of blacksmith)" (B)

[stem plus NS *kʰ iter. plus NS *-ih n.
deriv. suff. or else *-kih agent n.
suff. (NS *k caus. plus NS *-ih n.
deriv. suff.) cognate with SONGAY
*-igi agent. n. suff.: formed after *e
> i /C_LC in For]

Maban: MIMI bal "to hit"
Astab: NARA bel "to break"
Kir-Abb: GAAM bèl- "to beat, hit, shoot"
Kir-Abb: Daju: SILA ɓalaŋde "drum"

[stem plus NS *ŋ n. suff. plus Daju *-de
n. sing. suff (ESud *ṭ)]

Kir-Abb: Nil: WNil: OCOLO byɛl piny "to knock
down" (piny "down")
Kir-Abb: Nil: PENil *-bel- "to break by striking"
(BARI ɓeleŋ "to break (iron, stick)"; TESO
-belabel "to crush")

[2nd Bari entry: stem plus NS *ŋ punc.]

Rub: IK [ɓelém- "to burst (e.g., said of person who
has eaten unripe melons in big quantities)": LOAN
(expected *ɓeɫem-)]

[stem plus NS *m iter. concis. as intr.,
as also in a number of other cases in
this dictionary]

10. *ɓéːɫ "to shine brightly"
Koman: UDUK ɓélēcʼ "reflecting or flashing like
lightning"

[stem plus NS *ṭʼ iter: intens.]

Koman: UKUK ɓéɗɓéɗ "shiny"
CSud: PCS *ɓi "to burn, shine"
CSud: ECS *ɓiɓi "star"
KUNAMA biłau- "to flash"
Astab: Nub: DONGOLAWI bilinc- "to flash continu-
ally, glitter, sparkle, gleam, shine, be brilliant"
Kir-Abb: GAAM biłɛn "dark (at red end of spec-
trum)"

[redup. stem]

[redup. stem]
[stem plus NS *w punc.]
[stem plus NS *n dur, plus NS *ṭʼ iter.
intens.]
[stem plus NS *n adj. suff.; semantics:
focus of meaning must originally
have been on redness rather than
darkness]

Kir-Abb: C.Jebel *ɓiidi "sun" (AKA, MOLO biidi,
KELO ɓiidi)

[stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: WNil: NAATH biɛl "color"

[stem plus NS *-ih n./adj. suff.]

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11. *ɓɛ "to dance"
Koman: Gumuz: SESE ɓɛŋ "to dance"
CSud: PCS *ɓɛ "to dance"
KUNAMA b- "to dance"
Kir-Abb: Nil: WNil: OCOLO bɛt "to play"

[stem plus NS *ŋ punc. (?)]

[stem Plus NS *tʰ cont.]

12. *ɓéːh "to leave"
CSud: PCS *ɓɛ "to depart"
KUNAMA beti- "to untangle, free"
SONGAY bâ "to love, like, want"

[stem plus NS *tʰ cont.]
[semantics: derivation from root in sen
of letting/allowing]

SONGAY bèejè "to love dearly"
Maban: MABA -ba-n- "to leave, let, allow" (L)
Astab: Nub: NOBIIN báa- "to come out, go away,
leave"

[< *beege, stem plus NS *k intens.]

Kir-Abb: GAAM bìì- "to leave, allow"
Kir-Abb: BERTHA ɓə- "to go"

[stem plus NS *ʼy ess.-act.]

Possible Northern Sudanic semantic innovation: The semantic derivation, common among
world's languages, of the sense of letting/allowing/leaving-free-to-do from verbs with the conci
sense "to leave," appears on the surface, or is the implied prior meaning, in all the reflexes exc
those of Central Sudanic and Bertha and can thus be presumed to have been a long-existing seco
dary usage of the verb.

13. *ɓĩ "much, many"
Koman: UDUK ɓĩɓĩ "crowded"
Koman: UDUK ɓáár "all"

[redup. stem]
[< *ɓi-ar, stem plus NS *d or *r a
suff.]

CSud: PCS *ɓi "much, many"
Kir-Abb: proto-Daju *ɓiŋ- "fat; to swell"

[stem plus NS *ŋ punc. as deadj. or
n./adj. suff.; unclear whether v.
adj. or adj. usage < v.]

A short vowel is required by the derived root 13.

14. *ɓiah "mid-shoulder"
Koman: UDUK ɓã' "back of neck"
Koman: OPO ɓia' "neck"
Koman: GUMUZ *ɓiya "neck"
Koman: GULE been "neck"

[stem plus *n n. suff. commonly add
to Gule nouns (NS *n n. suff.
else article < NS *ne dem. root?)]

CSud: ECS *ɓaɓa "shoulder"
Kir-Abb: Daju: SHATT ɓac "shoulder"

[redup. stem]
[stem plus NS *tʰ n. suff. (Daju
sing.)]

Kir-Abb: Surmic: DM *ɛɓa "arm"

[fronted form of NS *a- attrib. pr
plus stem; environment of fronti
uncertain here (perhaps [-round]?)

Kir-Abb: Nil: PWNil *baːt "arm" (OCOLO bät
"arm"; NAATH ɓa-, base of numerals 6-9)

[stem plus NS *tʰ n. suff.]

Surma-Nilotic semantic innovation: The shift in application of this root from "shoulder" to pro
bly "outer shoulder/upper arm" underlies the meaning "arm," which was produced by separate p
allel shifts in Western Nilotic and Didinga-Murle, since distinct derivational morphology is pres
in the latter (*a- attributive noun prefix). Sudanic semantic innovation: shift to "shoulder"
general? Koman semantic innovation: shift to "neck."

15. *ɓìh OR *ɓì:h "sore, ulcer, wound"

Koman: UDUK àbíʼ "pus" [NS *a- attrib. pref. plus stem]
SONGAY bì "wound, sore, ulcer"

16. *ɓíl "to crack, break open (tr.)"

Koman: UDUK ɓíl "to pound or crack, as of nuts with stones"
CSud: PCS *ɓi "to pierce hole"
Kir-Abb: Nil: ENil: TESO -bɪl "to break (tr.)"

17. *ɓīθ "to slice thin"

CSud: Moru-Madi [ɓiti "fishing spear": LOAN from ENil, probably from early Bari]
KUNAMA *biši- "to mince"
SONGAY bísów "Acacia raddiana; Acacia dichostachys ninerea" [stem plus NS *w deverb suff.; semantics: from thorniness of Acacia sp.]
Astab: Taman: TAMA bissi "knife" [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: Nil: PWNil: *bit̪ "fishing spear" (NAATH bit̪; SHILLUK bɪt̪)
Kir-Abb: Nil: WNil: OCOLO bɛt̪ "sharp"
Kir-Abb: Nil: ENil: BARI *ɓiti "fishing spear" [stem plus NS *-Vh n. deriv suff. as in Tama?]
Rub: PRub *ɓis "spear" (IK ɓisá) [stem plus NS *-ah n. deriv. suff.?]

Sahelian semantic innovation: A meaning shift from the act to the result of slicing thin, namely, making sharp or thin, can be proposed to underlie all but the Kunama meaning cited here. Eastern Sahelian innovation: derivation from the verb of a noun for "large flat blade," possibly by addition of NS *-Vh attributive noun suffix to the root, as the Tama and Bari reflexes, but not the Rub outcome, might seem to suggest.

18. *ɓɪt̪ʰ "to grow"

Koman: UDUK ɓìcʰìláɓìcʰìl "very fat" [stem plus NS *l n. suff. plus stem, redup.]

KUNAMA biša "field" [i.e., place of growing crops]
Kir-Abb: Nil: WNil: OCOLO byɛjo "to grow very fat"

19. *ɓòɓ "to be much"

CSud: PCS *ɓo "to be big"
KUNAMA bubia "all" [stem plus NS *ʼy n./adj. suff.)
SONGAY bóbòw "very" [stem plus NS *w deverb. suff.)
Kir-Abb: Nil: WNil: OCOLO bop "large but not the largest"
Rub: IK ɓoɓ- "to be deep"

20. *ɓōh "misfortune, bad happening"

Koman: UDUK ɓòʼáɓò' "capable of bewitching" [redup. stem]
KUNAMA baa, baya, baha "bad" [stem plus NS *y n./adj. deriv. suff. (2nd entry)?]
Sah: KANURI kàvénè "blow, damage; sorrow" [NS *kʰ n. pref. plus stem plus NS *n dur. plus NS *y n. deriv. suff.]
SONGAY bònè "to be unhappy, unfortunate; misfortune, unhappiness" [stem plus probably NS *n dur. as deverb. plus NS *-eh n. deriv. suff.]
Kir-Abb: Nil: PENil *ibon- "to divine, work magic" [*i- v. class pref. plus stem plus NS *n dur.]

Kir-Abb: Nil: PENil *pɑn "to bewitch" [stem plus NS *n dur.]

Saharo-Sahelian morphological and semantic innovation: Kanuri, Songay and Nilotic all add a suffix in *n, probably the Nilo-Saharan durative in *n, hence "to have or make misfortune." In Nilotic that verb is preserved, while the addition of the *-eh or *y deverbative suffix produces a noun in the other two.

21. *ɓoŋk "to conceal, cover up"

CSud: PCS *ɓo "to cover, hide from view"
Astab: Nub: DONGOLAWI bokk- "to hide, go into hiding" [stem plus NS *kʰ intr.?]
Kir-Abb: DINIK [bùgòù "to hide": LOAN < Nubian (expected *buŋ-)] [stem plus NS *w punc.]
Kir-Abb: Nil: WNil: OCOLO boŋ "to keep secret, conceal for fear of consequences"
Kir-Abb: Nil: ENil: BARI kaɓúŋgùti "bark" [NS *kʰ n. pref. plus stem plus NS *t̪ʰ or *t̪ n. deriv. suff.; PENil *ŋ > BARI ŋg / #(CV)CV_VCV#]

22. *ɓoŋkʰ OR *ɓoŋkʼ "hip, upper thigh"

CSud: PCS *ɓo "large joint of body (hip?)"
KUNAMA banka "part of leg from thigh to hip"
Astab: Nub: DONGOLAWI bokk- "thigh"
Kir-Abb: Nil: WNil: MABAAN bóŋŋá, PL. bôŋgá "arm" [semantics: probably > "upper limb (in general)" > "upper arm" > "arm"]

23. *ɓó:r OR *ɓó:d "to be good"

Koman: UDUK ɓóráɓōr "good" [redup. stem]
SONGAY bòorí "beauty; to be good, well, beautiful" [stem plus NS *-ih n. suff.]
Kir-Abb: Surmic: DM *aɓunn- "good" [< *aɓurn- or *aɓuln-, NS *a- attrib. pref. plus stem plus NS *n modif. suff.]
Kir-Abb: Nil: ENil: BARI ɓɔrɔ-ja "to bless" [stem plus *w punc.?]

24. *ɓórēh OR *ɓódēh "thornbush cattle pen"

Sah: KANURI bárí "thornbush cattle enclosure"
Kir-Abb: Surmic: DM *ɓore "thorn enclosure" (of cattle pen) (LOAN < Rub?)
Rub: PRub *ɓor- "thornbush cattle pen" (IK ɓórré) (LOAN < Surmic?)

Either Surmic has borrowed this root from Rub or else Rub has borrowed from Surmic; determinative evidence as to direction is not yet available. But as the usual direction of influence has been from Rub to Surmic (e.g., as in root 814) among others found in this dictionary), the probability is that this word is an ancient Rub loanword in Surmic and that the correct reconstruction of the root is therefore ɓórēh.

25. *ɓɔ OR *ɓɔh "to turn (tr.)"

CSud: ECS *ɓɔ "to bend (tr.)"
KUNAMA bo- "to turn (tr.)"
Kir-Abb: GAAM bɔi- "to twist"
Kir-Abb: Nil: WNil: OCOLO bɔm "to bend, be crooked" [stem plus NS *ʼy ess.-act.]
[stem plus NS *m iter. concis.]

26. ***ɓɔ̌kʰ** **"to be worried by, upset by"**

Sah: KANURI bàgê "state of soulish depression caused by absence of spouse"

[stem plus NS *y n. deriv. suff.]

FOR bagi "shame"

[v. stem plus NS *-ih n. deriv. suff.]

SONGAY bàkàrà "to have pity"

[stem plus NS *r n. suff. ("pity"), with n. converted to v.]

SONGAY bàkàréy "pity, mercy"

[v. stem plus NS *y n. suff.]

Kir-Abb: Daju: SILA ɓag- "to fear"

Kir-Abb: Nil: PWNil *bok "to fear"

Rub: IK [bog- "to surprise": LOAN (expected *ɓɔk-)]

[semantics: intr. > tr., i.e., "fear" > "surprise," thus "frighten"]

Apparent Kir semantic innovation: shift to meaning "fear." The underlying shift to "fear" is indicated in the Rub reflex as well, but it may well be a loan from a Kir language.

27. ***ɓɔ̌kʰ** **"to soak (tr.)"**

CSud: PCS *ɓɔ "liquid, fluid"

SONGHAY bàkà "to put something to soak"

Kir-Abb: GAAM bəin- "to filter, sieve"

[stem plus NS *-i itive plus NS *n dur.]

Kir-Abb: Nil: WNil: OCOLO bɔk "to wash out, undermine (by water)"

Rub: IK bɔ́kɔny "river bank"

[stem plus NS *ɲ n. suff.]

28. ***ɓúː** **"to stay"**

CSud: ECS *ɓu "to stay"

Sah: KANURI bún "spending the night"

[stem plus NS *n dur.]

Sah: KANURI búné "night"

[1st entry plus NS *y n. deriv. suff.]

FOR bu- "to get tired"

[semantics: "to stay still" (because of tiredness)]

SONGAY bú "to die"

[semantics: "to stay" > "to not move" > "to die"]

Astab: Nub: DONGOLAWI bu: "to be, exist"

Kir-Abb: Nil: WNil: NAATH but "to stay all day"

[stem plus *tʰ cont.]

29. ***ɓùːr** **"pit, hole in the ground"**

CSud: PCS *ɓu "pit"

KUNAMA bura "hole" (bur- "to bore")

[v. is apparent back-formation from n.]

Sah: KANURI bùrùrú "very deep ditch in next world in which hellfire resides"

[partially redup. stem (as intens.?) plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO buur "hole in ground"

30. ***ɓwáh** **"female"**

Koman: UDUK ɓwā' "daughter"

Koman: UDUK àɓóm "woman, wife"

[NS *a- attrib. pref. plus stem plus NS *m n. suff.]

CSud: PCS *ɓɔ "weak"

Sah: ZAGHAWA abo "grandmother"

[NS *a- attrib. pref. plus stem; loan from For?]

Sah: BERTI bobo "grandmother"

[redup. stem, as commonly in terms of address]

FOR abo "grandmother" (B)

[structure as in Zaghawa; loan < Zaghawa?]

Kir-Abb: proto-Daju *ɓo "mother"

Possible Sahelian semantic innovation: narrowing of meaning from "female" to "mother" in particular? The Saharan and For use of the root to mean "grandmother" has a restricted areal distribution in Jebel Marra and areas immediately north of it, and cannot be presumed a Saharo-Sahelian innovation.

31. ***ɓwɔ** **"to approach"**

CSud: PCS *ɓo "to approach"

FOR bo- "to reach"

Kir-Abb: C.Jebel *ɓə- "to go" (AKA bə-, MOLO ba, KELO ɓə-)

Kir-Abb: proto-Daju *ɓo "to come"

Kir-Abb: PNil *bwɔ "to come" (WNil: JYANG -bɔ; SNil: NANDI pwa)

Rub: SOO [ɓɔ "near": LOAN (from CSud?); expected *ɔɓ]

Rub: IK ɓún- "to pass"

[stem plus NS *n dur., i.e., approach and continue on by]

Kir semantic innovation: shift to meaning "to come."

PROTO-NILO-SAHARAN *b

32. ***ba** **"this one" (dem. pron.)**

Koman: Gumuz: DISOHA ba "this"

CSud: WCSud: BONGO ba "he"

CSud: WCSud: YULU nab "other"

[CSud *na dem. (rroot 255) plus stem]

KUNAMA aba "I"

[stem plus NS *a (< *ah, root 1583) 1st person element, analogized to canonical VCV pron. shape]

KUNAMA -be << interrogative particle >>

[< *bay-, stem plus Kunama form of NS *y- interrogative stem, root 1467]

FOR ba "only" (B)

SONGAY ba "self"

Astab: NARA teb "he, she, it"; teba "they"

[Sahelian 3rd person sing. pron. *tʰay (see root 792) plus stem; pl.: sing. 3rd person pron. plus pl. in *a]

Astab: Nub: DILING be, PL. bi "one" (pron.)

[possibly *bay, stem plus NS *y or *'y n./adj. suff.]

Kir-Abb: BERTHA mba (M) "this"

Kir-Abb: West Daju *aba "he, she, it"

[NS *a- attrib. pref. plus stem or else shift of *ba to canonical VCV shape]

Kir-Abb: Nil: ENil: Maa *-bo "one"

[presumed *baw, stem plus NS *w n./adj. deriv. suff.]

For another form of the same underlying root, but with vowel *i instead of *a, see root 50. The semantics of *a/*i variants for V in Nilo-Saharan CV demonstrative roots is unclear. For other examples see roots 189, 234, 322, 792, 907, 964, 1154, 1292, and 1468.

33. ***bâ** **"to rise, go up; to add, put together; to increase"**

CSud: ECS *ba "to rise, go up; to add, put together"

Kunama b- "to extend"

Sah: KANURI bà "to mount"

FOR *bauŋ- "to jump up and down" | [stem plus NS *-uh ven. plus NS *ŋ punc.]

FOR bat "very"
SONGAY bà "to be numerous"
Astab: Nub: DILING bati "depth" | [stem plus *tʰ or *ʈ n./adj. suff.]

[stem plus *tʰ n. suff.; semantics: "rise" > "be high, long, tall, deep"]

Kir-Abb: GAAM bəid- "to exceed, surpass" | [stem plus *ʈ caus.]

34. *bàːɗ "to knock down"
Koman: UDUK bàɗ ... ĩs "to level" (ĩs = refl.)
SONGAY béeri "to bring down, demolish"
Rub: IK íbaɗ "to knock" | [stem + *-i]
[*i- v. class pref. plus stem]

35. *bàːɟ "to encase, enclose"
Koman: UDUK bàg "to hide, conceal"
Koman: UDUK bàk' gwò "to conceal a matter" (gwò "matter, word")
KUNAMA bagi- "to grow dark, be dark" | [stem plus NS *'y ess.-act. (as *-iy-)?]
Sah: KANURI bágà "covered heap" | [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO bäk "to enclose with fence"

36. *bàːk' "to shine brightly"
Koman: UDUK bák'bàk' "adverb of person nauseated or affected by sun" | [redup. stem; probably ideophone]
KUNAMA baka "thunderbolt"
KUNAMA bakako- "to flash (of lightning)" | [partically redup. stem as iter.]
Kir-Abb: GAAM bəəd- "to kindle, light, set afire; to give light, shine" | [stem plus NS *ʈ caus. or *tʰ cont.]
Kir-Abb: C.Jebel: AKA baaga "white"
Kir-Abb: Surmic: S.Surmic: MURSI báká "to burn (tr.)" | [stem plus NS *-a dispunc.?]
Kir-Abb: Nil: WNil: OCOLO bäk "to cook by boiling"
Rub: IK [pakⁱ "too white, extremely white (ideo.)": LOAN (expected *bak'-), probably from SNil (PNS *b, *k' > PSNil *p, *k)]

Surma-Nilotic semantic innovation: shift from intransitive to transitive application without overt morphological marking of this shift.

37. *bap OR *bab "front of torso"
CSud: PCS *ba "breast"
KUNAMA ebbeba "diaphragm" | [allomorph of NS *a- attrib. pref. plus stem; fronting of V remains to be explained, however]

Kir-Abb: Nil: WNil: OCOLO bap "front of torso"
Rub: IK [baba "armpit": chance resemblance; borrowing of proto-Cushitic *bob- "armpit," probably from Lowland East Cushitic language]

38. *bás OR *báθ "to flow out"
Koman: UDUK àbàs "blood" | [NS *a- attrib. pref. plus stem]
CSud: PCS *ba "to flow out"

Astab: Nub: DONGOLAWI basɛ "pool, especially left by falling river" | [stem plus *y n. forming suff.]

39. *báʈ OR *báʈʰ "to proceed"
Koman: UDUK báʈʰ "to follow"
CSud: ECS *ba "to leave, depart"
KUNAMA batta- "to draw away, leave" | [*bad-t- or *-bat-t-, stem plus NS *tʰ cont.]

FOR *bat- "to pass"
Kir-Abb: Nil: ENil: MAASAI [a-báú "to arrive": LOAN < CSud (loss of C#)] | [borrowed stem plus *-uh ven.]

40. *báw OR *bàw "adze"
CSud: ECS *ba "adze"
KUNAMA bobona "adze" | [redup. stem plus NS *n n. suff.]
FOR bóù, PL. bóútó "ax" | [stem plus NS *-uh n. suff.]

41. *bay "body" [root 32 plus NS *y n. suff.]
Koman: GUMUZ *be(y)a "skin (of person)"
CSud: ECS *abɛ "dead person" | [CSud *V- pref. (NS *a- attrib.) plus stem]
Kir-Abb: Surmic: DM *beyen "grave" | [stem plus NS *n n. suff.]
Kir-Abb: Nil: WNil: MABAAN [bɛɛnán, PL. bêjjʌ "skin": LOAN from Koman (Gumuz)]
Kir-Abb: Nil: PSNil *peɲ, PL. *paɲ "meat" | [stem plus NS *ɲ n. suff.]

Sudanic semantic innovation: A meaning shift from "body of a person" to "corpse" can be argued to underlie the Central Sudanic and Surma-Nilotic meanings. A further shift to "corpse of an animal" in pre-Southern Nilotic allowed the root to take on the meaning "meat" in proto-Southern Nilotic.

42. *bè "to understand"
Koman: UDUK bènà "to be smart, to learn how to do things quickly" | [stem plus NS *n dur. plus NS *-a dispunc.]
CSud: BALEDHA bě "to see, know, understand" | [earlier shape *obe or *abe, CSud *V- pref. plus stem, explains BALEDHA V outcome: PCS *be > BALEDHA *bi; PCE *Vbe > BALEDHA *be, where V = *o or *a]

Sah: KANURI bè "to instruct"
SONGAY béɣ "to know, understand" | [stem plus NS *'y ess.-act.
Kir-Abb: Nil: ENil: TESO a-beit "truth" | [stem plus probably NS *'y ess.-act., as in Songay, plus NSud *ʈ n. suff.]

Sahelian morphological innovation: addition of Nilo-Saharan *'y ess.-act. to simple verb.

43. *bé "to stay"
Koman: UDUK bè "to be (something)"
Koman: GUMUZ *be "to sit"
SONGAY bètù "to wait for, keep watch on someone" | [stem plus NS *tʰ cont. plus NS *-uh ven. suff.]
Maban: MABA bi "to lie down" | [possible *be'y, stem plus NS *'y ess.-act.]

Kir-Abb: Surmic: SWSurmic: MURLE -vɛ "to sit, stay"

Kir-Abb: PNil *bet "to sit, stay" (WNil and SNil reflexes)   [stem plus NS *tʰ cont.]

44. *beːh "ears; leaves" [root 42 plus NS *-Vh n. deriv. suff.]

CSud: PCS *bi "ear; leaf"

CSud: PCS *ebi "unripe, raw"   [CSud *V pref. plus stem; semantics: "leaf" > "green," with "green" > "not ripe"; cf. English among other languages for same semantic shift]

Sah: ZAGHAWA kebbe "ear"   [NS *kʰ n. pref., here probably in its old use as a particularizer, plus stem; unclear whether gemination of *b is real or a recording error]

Kir-Abb: Nil: ENil: Lotuko-Maa [*-bene "leaf": probable LOAN from extinct Rub-related language since it displaces the older ENil root, for which see root 1496]   [stem plus NS *n n. suff.]

Rub: PRub *beos "ear" (IK "ear," rarely "leaf")   [pre-PRub *bens (*n required by PRub *eo sequence), stem plus probably ESud *s sing.]

The linkage of the meanings "leaf" and "ear" is ancient in the Nilo-Saharan family, going back probably to one of the two original roots for "ear" (root 937). The interplay of the two meanings sometimes affected new roots later in Nilo-Saharan history, e.g. root 1496, although the linkage probably eventually died out in most languages of the family. As indicated, two roots for the organ of hearing can be reconstructed back to proto-Nilo-Saharan, *ʈ'eː(m) (root 937) and *Wikʰin (root 1414), the second of these denoting only the ear, but the first probably from the beginning naming both ears and leaves. The probable semantic explanation of this pair is that the two were originally suppletives, with *Wikʰin being the singular and *ʈ'eː(m) a dual or collective. The root *beːh clearly, from its derivation, at first named the organ but must soon have taken on the same semantic extensibility, to foliage, as *ʈ'eː(m).

The two roots need not have become fully synonymous in their reference to the ears. One may have become at the proto-Sudanic stage the suppletive dual, and the other the general plural. This solution is supported by the parallel occurrence, by the Northern Sudanic stage, of three roots also for the other paired sense organ of the head, the eye—*ye (root 1486) and *wɛː (1404), which appear from their reflexes to best be reconstructed as a non-singulars; and *waŋ (root 1379), derived from *wɛː, which gives no indication of having had other than the simple meaning "eye." A fourth root *moy (root 143) may have originally meant "upper part of the face," but it commonly also produced reflexes that today mean "eye."

Both *ʈ'eː(m) and *beːh dropped out of common use for "ear" after the appearance of a new root word *'weŋ (root 1437) for the organ of hearing in proto-Sahelian, although certainly *beːh and possibly *ʈ'eːm continued to apply to foliage in some of the Sahelian languages. The addition of the *n suffix in the Rub and Lotuko-Maa forms of *beːh is best explained as a derivational operation, reflecting the meaning shift in the root at or after proto-Sahelian times to just "leaves." Its restricted geographical occurrence favors its having been an innovation of pre-proto-Rub, borrowed into proto-Lotuko-Maa. Proto-Rub *beos < *bens thus emerges as still a further derivation, built on the extended form *ben- and creating anew the meaning "ear" for the Rub reflex through the addition of an old singular marking.

45. *bèd OR *bɛ̄d "pole, rod"

CSud: PCS *be "shaft, handle"

SONGAY bírí "bone"   [stem plus NS *-ih n. deriv. suff.]

Astab: Nub: DONGOLAWI ber "pole, beam, timber"

Astab: Nub: DILING bere "Holtzstoss"

Kir-Abb: BERTHA bɛ̀rr, PL. béːri "spear"

Kir-Abb: Nil: WNil: NAATH ber "rafters, crosspieces"

46. *béʈ' "meat"

Koman: Gumuz *bic'- "meat" (SAI bica, SESE bəc'a, KOKIT bic'a)

SONGAY bésí "flesh"

47. *bɛː "of"

Koman: UDUK b- << possessive marker of plural possessive prons. >>

Koman: KOMO ba "of"

Sah: KANURI -be << genitive marker >>

48. *béb OR *béːb "large, wide"

Koman: UDUK béb "large amount"

Koman: Gumuz: SAI bəbiːlɪma "wide"   [stem plus NS *l n. suff. plus NS *m adj. suff.]

KUNAMA ebbeba "lard"   [allomorph of NS *a- attrib. pref. plus stem; semantics: "wide" > "fat" > "fat (n.)"]

Kir-Abb: Surmic: MAJANG bɛːbɛːŋ "big"   [stem plus NS *ŋ n./adj. suff.]

Kir-Abb: Nil: WNil: OCOLO obɛp "bulging"   [NS *o- attrib. pref. plus stem]

Kir-Abb: Nil: WNil: MABAAN bɛbɛːi "long"   [stem plus NS *y n./adj. suff.]

Rub: IK [bɛf (bɛfá-) "puff adder": LOAN (expected *béb-) from language in which PNS *b devoiced stem-finally, hence > PRub *p > IK /f/]   [stem plus NS *-ah n. deriving suff.; semantics: "fat one": puff adder has exceptionally wide body relative to its length]

Rub: IK [bɛfókúm- "to have a big body": LOAN (see explanation in preceding entry)]   [stem plus NS *kʰ intr. plus *m iter. concis. (as intr.?)]

49. béːr "to spread (tr.)"

Koman: UDUK bàràšíɗ "to spread out or open like a mushroom"   [stem plus NS *ṣ caus. plus NS *ḷ intr.]

KUNAMA berke- "to lengthen, spread, open"   [stem plus NS *kʰ intr.]

Kir-Abb: GAAM bàrd- "to stretch"   [stem plus NS *tʰ cont.]

Rub: IK béber- "to pull"   [partially redup. stem as dur.; semantics: "stretch" > activity that stretches, namely, pulling; IK /e/ implies PNS *ɛː]

Eastern Sahelian semantic innovation: A shift to "to stretch" appears in the Gaam reflex and appears to explain the Rub use of the verb for an action that stretches.

50. *bí OR *bī "which one?" (interrog. pron.); "that one" (dem. pron.)

Koman: KWAMA bi "what?"

Sah: KANURI àbí "what?"

Sah: KANURI bî "male"   [NS *a- attrib. pref. plus stem] [semantics: "someone" > "person" > "man"]

SONGAY bi "yesterday"   [stem plus NS *-Vh n. deriv. suff. (required by tone shift); semantics: "that day" as opposed to "this day, today")]

Astab: NARA biː "other"

Kir-Abb: GAAM bíig "some" (amount)   [stem plus probably NS *-Vh or *-'y n. suff. plus NS *kʰ pl. suff.]

Kir-Abb: Nil: ENil: TESO biai "how?"   [stem plus probably *ayɛ, NS *a-n./pron. forming pref. plus *y-interrog. stem (root 1467)]

Kir-Abb: Nil: PSNil *piːk "people"   [stem (plus probably NS *-Vh n. suff. to account for V length) plus NS *kʰ pl. affix]

See also root 32, to which this root would seem ultimately to be related.

51. *bi   "you (pl.)"   [roots 32/50 with NS *i 2nd person marker (root 1600) substituted for final vowel]

Saharan *b << 2nd person pl. marker >>   [after Cyffer 1981; see root 280 for sing. 2nd person marker]

FOR bì "you (pl.)"
FOR bí "you (pl. obj.)"
Rub: PRub *bi "you (sing.)"
Rub: PRub *bit- "you (pl.)"   [stem plus *tʰ pl. suff. (affix 69)]

This root can be understood as a derivative of the demonstrative pronomial stem underlying the roots 32 and 50, with NS *i "you (sing.)" (root 1600) attached to mark person. A parallel formation of the Kunama first person singular pronoun can be seen in root 32.

52. *biːɗ   "to raise"
CSud: PCS *bi "to raise"
Sah: KANURI bírtì "weal"   [stem plus NS *tʰ n. suff.]
SONGAY bìirì "to bring up, raise"
Astab: Nub: DONGOLAWI biːr "to transport, carry, move"
Kir-Abbb: Nil: WNil: OCOLO biṯ "to gather together, of scattered things"

Eastern Sahelian semantic innovation: shift of focus from a causing of an upward movement to a concrete picking up and moving of things.

53. *bíp OR *bípʰ   "buffalo"
Koman: UDUK bípʰ "cow"
CSud: PCS *bi "buffalo" (BALEDHA bi)

Other possible reconstructions: *bíːp or *bíːpʰ.

54. *bír   "to run fast"
Koman: UDUK bír "to gallop (of horse)"
KUNAMA birki- "to frisk about"   [stem plus NS *kʰ iter.]
Sah: KANURI bərt "to run (away) at full speed"   [stem plus NS *tʰ cont.]
Kir-Abb: BERTHA biri "fast"   [stem plus NS *-Vh n./adj. deriv. suff.]

55. *bíy OR *bíːy   "earth, ground"
CSud: PCS *bi "ground; down"
Sah: DAZA bi "world"
Rub: IK biy "outside"

56. *bô   "to not go"
CSud: ECS *bo "to not move"
Sah: KANURI bò "to lie down"
Kir-Abb: GAAM bɔɔn- "to wait"   [stem plus NS *n dur.]
Kir-Abb Nil: ENil: TESO -boi "to dwell"   [stem plus NS *'y ess.-act.]

57. *bô   "face"
Koman: UDUK bùyè' "forehead"   [stem plus NS *'y n. suff. plus NS *-eh n. deriv. suff.]

SONGAY bòŋ "head"
Maban: MIMI bo "head"   [stem plus NS *ŋ n. suff.]
Rub: IK ób "cheek"

58. *bobo   "gadfly"
CSud: PCS *bobo "kind of fly" (BALESE "gadfly")
KUNAMA babona "gadfly"   [stem plus NS *n n. suff.]

59. *bôd OR *bôd   "body (of person)"
CSud: ECS *bo "side (of body)"
CSud: ECS *àbò "corpse"   [CSud *V- pref. (here < NS *a- attrib. pref.?) plus stem]

Sah: TUBU *-br- formative of personal prons. *tɔbre "I"; nubre "you"; etc.)
Sah: ZAGHAWA baru "man"
SONGAY bòrò "person, human being"
Kir-Abb: Surmic: S.Surmic: DIDINGA boro "man"
Kir-Abb: Nil: ENil: BARI ɓöríkö-t "skin of body"   [stem plus NS *kʰ pl. (mass pl. "skin"), transforming "person" to "skin of body" (of person), plus modern Bari number marking]

Kir-Abb: Nil: PSNil [*poːr "body: LOAN (expected short vowel)]

Saharo-Sahelian semantic innovation: shift from "body" to person." The older sense is preserved, however, in the extended Bari noun shape. The loanword in Southern Nilotic may be borrowed from a lost or as yet unattested Koman original, since it preserves the pre-Saharo-Sahelian meaning and its shape is not Central Sudanic.

60. *bôːd   "white"
CSud: ECS *obu "to be white"   [CSud *V- pref. plus stem]
Sah: KANURI búl "white"
Kir-Abb: GAAM bɔɔr "pale, yellow-orange"
Kir-Abb: PNil *boːr "white" (WNil: NAATH bor, JYANG mabior "white"; ENil: Maa *-ibor "to be white"; SNil: DATOGA bor- "yellow")   [Jyang: NS *m adj. affix plus stem; Maa: *i- v. class pref. plus stem]

61. *bôɗ OR bôɗ   "to scratch (skin, surface)"
Koman: UDUK bùrùšábùrùš "rough from dried foot marks made when ground was muddy"   [adj. by redup. stem plus NS *ṣ n./adj. suff., added since *ɗ > UDUK r /_#]

KUNAMA baršaka- "to crack, chap"   [stem plus NS *θ intens. plus NS *kʰ intr.]

Sah: KANURI bárzák "ideophone of rash breaking out on body"   [stem plus probably NS *ṭ' iter. intens. plus NS *kʰ intr.]
Astab: Nub: DILING boj "to rub ointment on"
Kir-Abb: GAAM bɔrj- "to deface, scratch"   [stem plus probably NS *'y ess.-act.]
Kir-Abb: Nil: ENil: BARI ɓɔrɔ-ja "to smear"   [stem plus NS *w punc.(?); semantics: similar to that of Diling reflex)

62. *bo h   "big"

Koman: GULE abo' "long" [NS *a- attrib. pref. plus stem]
CSud: PCS *bo "big"
Sah: DAZA bo, bu "big"
Kir-Abb: GAAM bɔi- "to get fat" [stem plus NS *'y ess.-act. as deadj.]
Kir-Abb: Surmic *boi "big" [stem plus NS *'y n./adj. suff.]
Kir-Abb: Nil: ENil: BARI [bɔt-an "to be big (in size)": LOAN (expected *6ɔt-), probably from CSud] [stem plus NS *tʰ cont. as deadj.]

63. *boŋ   "to shine, be hot"

CSud: ECS *boe "lightning" [stem plus CSud *-V n. deriv. suff. (NS *-eh)]

KUNAMA baŋa- "to shine, be hot"
Maban: MABA boŋok "heat" [-k is Maba n. sing.]
Maban: MIMI baŋteri "hot" [stem plus NS *tʰ cont. plus *r n./adj. suff.]

Rub: IK boŋórén "brown soil found in fireplace, reddish ground" [stem plus NS *r, *n n. suff.; semantics: ground that has been burnt]

64. *bòːr   "to move, travel, migrate"

CSud: ECS *ebu "path" (BALEDHA bù "animal path, track"; BALESE ípu "road, path") [CSud *V- pref. plus stem]
Sah: KANURI bùr- "to migrate"
Kir-Abb: NYIMANG bwir, DINIK bori "path, road" [< *bori, stem plus NS *-ih n. deriv. suff. (see Stevenson 1955)]

The Central Sudanic reflex appears to be a distinct morphological derivation from that seen in the Nyimang dialects and so probably does not attest an early Nilo-Saharan noun formation.

65. *bɔk ʰ OR *bɔ k'   "to dig up"

CSud: PCS *bɔ "to dig up"
KUNAMA boka-, boko- "to dig, scrape the ground"
FOR bàgù "cultivation near house" [stem plus NS *-uh n. deriv. suff.]
Kir-Abb: Nil: PENil *-bɔk- "to dig" (BARI 6ɔkɛt, PL. 6ɔkɛsi "pick-ax") [stem plus ENil *-et deverb. suff.]

66. *bɔ̃ŋk   "fluid, liquid" [stem seen also in root 76 plus NS *k intens.?]

SONGAY bàŋgù "lake, sea" [stem plus NS *-uh n. suff.]
Maban: MABA boŋo "mucus, snot"
Kir-Abb: NYIMANG, DINIK bóŋ "water"
Kir-Abb: TEMEIN muŋ "water" [nasal assim.: *b > m /#_VN#]

67. *bɔ́r OR *bɔ́ːr   "to wear out, become tired"

Koman: UDUK bórā ē "to nap" (ē "amid") [stem plus NS *-a dispunc.]

CSud: PCS *bɔ "weak"
KUNAMA borso- "to grow old" [stem plus NS *s prog.]
Astab: Nub: DILING bar "to become tired"
Kir-Abb: Nil: ENil: MAASAI -bɔ́rr- "to be calm, quiet, docile"

Rub: IK bɔr-ét- "to be tired" [stem plus Ik ven. suff.]

68. *bu   "ground"

CSud: PCS *bu "earth"
Astab: Nub: DONGOLAWI bun "bottom, underside" [stem plus NS *n n. suff.]
Kir-Abb: Surmic: S.Surmic: ME'EN bwi: "earth" [stem plus NS *'y n. suff.]
Rub: PRub [*bú "dust": LOAN, probably from CSud (expected *ub)]

69. *bū   "to go down" [v. complement of root 68?]

CSud: PCS *bu "to lay, set"
CSud: ECS *abu "to sit on eggs" [CSud *V- pref. plus stem]
Sah: KANURI bán "to lie down, roost" [stem plus NS *n dur.]
FOR buuŋ "to descend" [stem plus NS *ŋ punc.]
Kir-Abb: BERTHA bùθ- "to go down: [stem plus NS *tʰ cont.]
Kir-Abb: Nil: WNil: OCOLO but "to lie down" [stem plus NS *tʰ cont.]
Kir-Abb: Nil: SNil: Kalenjin *put "to fall" [stem plus NS *tʰ cont.]

Kir-Abbaian innovation: addition of Nilo Saharan *tʰ continuative extension to root without overt semantic effect.

70. *būkʰ   "to scrape"

CSud: MM: LUGBARA vù "to scrape, brush against, scrape off" (Lugbara [v] < PCS *b /_u)
SONGAY bùkà "to grind grain after it has sat for some hours in water" [stem plus NS *-a dispunc.]
Kir-Abb: GAAM bùùn- "to cultivate" [stem plus NS *n dur.]
Kir-Abb: Nil: WNil: OCOLO buk "to dig around plants or trees; to dust, as a chicken"
Kir-Abb: Nil: ENil: BARI [buk- "to (sprinkle) dust": LOAN from LUO (expected 6uk-): see Ocolo entry]

Kir-Abbaian semantic innovation: A narrowing of the application of the root to scraping the ground is seen in the Gaam and Nilotic reflexes.

71. *bùnd   "piece of skin"

FOR bundi "lip" (B)
SONGAY bùndù "wood, pole, stick"
Kir-Abb: proto-Daju *kabundice "bark" [NS *kʰ n. pref. plus stem plus NS *tʰ n. suff. (Daju sing.)]

Kir-Abb: Surmic *bur- "egg"
Kir-Abb: Nil: SNil: BARABAIG burúːŋyɛːnda, PL. búrúːŋga "egg" [stem plus NS *ŋ n. suff. (plus SNil n. 2ndary suffixes)]
Kir-Abb: IK bɔɗɔ́k "bark" (< *buɔɗɔk-) [< *buɔɗɔk < *bundɔk, stem plus NS *kʰ pl. suff. (as mass pl.)]

Trans-Sahel semantic shift: The Sahelian attestations outside of For narrow the application of this root to "hard skin"; originally, it can be proposed, the root would have applied in early Sahelian to pieces or sections of bark, hence its shift to piece of wood, i.e., "pole, stick," in Songay. Surma-Nilotic semantic innovation: shift from "piece of bark" to "shell" to "egg." The derivation of words for "egg" from words that originally meant "hull," "shell," "bark," "rind," or the like is a recurrent Nilo-Saharan pattern. This shift can be found not just here, but among the reflexes of roots 163, 167, 495, 689, 1047, 1171, and 1458.

72. *buːr   "chest"

Astab: Taman: TAMA buːl "chest"

Astab: Taman: SUNGOR oburut "lung"   [NS *o- attrib. pref. plus stem plus NS
                                                    *tʰ n. suff. (as sing. here?)]

Kir-Abb: NYIMANG buraŋ "body"   [stem plus NS *ŋ n. suff.]
Kir-Abb: Nil: WNil: BURUN buri "belly"
Kir-Abb: Nil: ENil: BARI ɓur, PL. ɓurön   [listed under "stomach" in Muratori
    "stomach" (?)   1948 as root to be compared with
                                                    those words specifically cited as
                                                    meaning "stomach"; but not found as
                                                    yet by writer elsewhere in that
                                                    source]

Rub: Wn Rub *bubur "heart"   [partially redup. stem]

This root appears limited to Eastern Sahelian, but is included to distinguish it from the resemblant,
wider spread root *mbod (root 87).

73. *bùt̪' "to handle"

Koman: UDUK bùt̪' 'to accept, hold, take, take hold
    of, receive"
KUNAMA buduru- "to paw"   [stem plus NS *r iter.]
FOR but- "to pluck"
SONGAY bútì "to lift a garment, for example to uri- [stem plus NS *-i itive]
    nate or strike someone"
Kir-Abb: Nil: ENil: BARI ɓutun "harvest"   [stem plus NS *n n. suff.]
Kir-Abb: Nil: PSNil *putul "nail, claw, hoof"   [stem plus NS *l n. suff.]

Apparent Sahelian semantic innovation: The verb reflexes in Songay, in For, and (underlying) in
Bari share in a shift to a narrow focus of action, originally probably to picking up or plucking with
the fingers.

74. *búwák̊ʰ OR *búhák̊ʰ "to cry out"

Koman: UDUK búkʰ / búh "to bark"
CSud: ECS *bɔ "to call out"
KUNAMA bokoro- "to cry loudly"   [stem plus NS *r iter. (as intens.?)]
Sah: KANURI bógó "to call, name"   [stem plus NS *w punc.]
Kir-Abb: Nil: ENil: MAASAI -búák "to shout, bark"

75. *àbí "upper arm"

Koman: UDUK ábí "upper arm, wing, large branch
    of tree"
Sah: KANURI bìví "upper arm"   [redup. stem, with regular Kanuri loss
                                                    of initial *a- (*abibi > *bibi)]
Sah: BERTI abi "upper arm"
Maban: MABA kabik "armpit"   [NS *kʰ n. pref. plus stem; -k is Maba
                                                    n. sing. suff.]

76. *abɔŋ "hippopotamus" [NS *a- attrib. n. pref. plus stem seen in root 66?]

CSud: PCS *ɛbɔ "hippopotamus"   [vowel-raising assim. of original initial
                                                    *a- (*a > *ɛ / #_CɔC#)]
SONGAY bàŋà "hippopotamus"
Kir-Abb: proto-Daju *boŋoR ~ *ɓoŋoR "crocodile"   [stem plus NS *r n. suff.]

PROTO-NILO-SAHARAN *mb

77. *mbà:d "light (in sky)"

CSud: ECS *emba "moon"   [CSud *V- n. pref. plus stem]
KUNAMA badda "above"
                                                    [< *badt-, stem plus NS *tʰ n./adj.
                                                    suff.?]
Sah: KANURI kə́mbàl "moon"   [NS *kʰ n. pref. plus stem]
Sah: ZAGHAWA bar, BERTI mar "star"
Kir-Abb: NYIMANG t̪abár "white"   [NSud *t̪ n./adj. suff., prefixed as nor-
                                                    mal in Nyimang, added to stem after
                                                    *mb > *b /#_]
Kir-Abb: Surmic: DM *mari "red"   [stem plus NS *-ih n./adj. deriv. suff.?]
Kir-Abb: Nil: WNil: NAATH mar nhial "lightening"
    (nhial "sky")

78. *mbar "two"

Koman: GUMUZ *mban(d) "two"
KUNAMA balle, bare "two"   [nasal assimil.: *r > n(d) /#NCV_#]
Maban: MABA mbar, MASALIT barra "two"
Astab: Nub: DONGOLAWI bars- "twin"   [stem plus NS *s n. suff. (lexicalized
                                                    ESud *-es- sing. suff.?)]

79. *mbàr "to catch"

CSud: PCS *mba "to hunt"
Sah: KANURI mbàr (H) "to take out of pawn"
Maban: MABA -mbar- "to pluck hair"
Kir-Abb: Nil: WNil: OCOLO maro "greedy person"

Probable Saharo-Sahelian semantic innovation: shift in connotation from catching in general the
motions of grasping AND taking for or toward oneself.

80. *mbèl "to emerge (from behind or out of something)"

Koman: UDUK bèɗ "to lift (something hidden) from
    hole, to bring out matter hidden a long time"
KUNAMA [belle- "to stick out tongue": probable
    LOAN (expected *ball-)]
Sah: KANURI mbəlá "to ambush, lie in wait"
SONGAY dèènò mélòw "to stick out the tongue"   [stem plus NS *-a dispunc.]
    (dèènè "tongue")   [stem plus NS *w punc.]
Astab: Nub: DONGOLAWI bɛl "to issue, emerge,
    come out; to rise (of heavenly bodies)"
Kir-Abb: GAAM bəl- "to appear, happen unexpect-
    edly, rise (of sun, moon)"
Kir-Abb: Nil: ENil: TESO mɛj(a) "to hunt"   [stem plus NS *-a dispunc. suff.; via
                                                    sense also seen in Kanuri reflex]
Rub: IK imɛl- "to move tongue in and out like a   [*i- v. class pref. plus stem]
    snake"

Saharo-Sahelian morphological innovation: stem plus Nilo-Saharan *-a dispunctive, with meaning
"to lie in wait and ambush," hence Teso meaning "to hunt (animal)." Probable Sahelian semantic
innovation: An added application of the verb to the sticking out of the tongue is attested in Songay
and Ik. The loanword occurrence of the same meaning in Kunama most likely comes from Nara, a
Sahelian language, if so providing further support for this Sahelian shift.

81. *mbéyr "thin strip, fiber"
Koman: UDUK bíírmàn "tree root or large branch" [stem plus NS *m and *n n. suff.]
Koman: UDUK àbírmàn "root" [NS *a- attrib. pref. plus 1st Uduk n.]
Koman: KOMO biɫ "root"
CSud: ECS *mbi "strand"
Kir-Abb: Nil: PWNil [*bier "root": LOAN from Koman (*b for expected *m)]

82. *mbér "to grasp and take"
CSud: PCS *mbɛ "to take hold of, make fast"
KUNAMA -ber- "to rend, tear"
Sah: KANURI mbɔ́rɔ́k "ideophone of uprooting action" [stem plus NS *k intens.; irregular V as often in ideophones]
SONGAY bàrbàtà "to fish with the hand" [stem plus NS *p extend. plus *tʰ cont.]
Kir-Abb: GAAM bɔ́r- "to pick, pluck (fruit)"
Kir-Abb: Daju: SILA mbir- "to catch"

83. *mbih OR *mbiːh "water"
CSud: ECS *mbi "small body of water"
KUNAMA bia "water"
Sah: ZAGHAWA bi, BERTI mi "water"

Reconstruction of medial *h is required to explain retention in Kunama of distinct /i/; otherwise the reflex in Kunama would have been *ba.

84. *mbínéh "heart"
SONGAY bíné "heart"
Kir-Abb: Nil: WNil: OCOLO mino "heart" [regular final V of sing. n. that ends in V in Luo group is *-o, presumed here to have displaced earlier *-e]

85. *mbo OR *mboh "to become thick, fat, large"
CSuid: PCS *mbo "to swell"
KANUMA buta "male, strong, robust" [stem plus NS *tʰ n./adj. suff., with accompanying lengthening of stem V (*mbohota > *boota > /buta/?)]
Astab: Nub: DONGOLAWI kombo "strout, healthy, fat, strong" [NS *kʰ n./adj. pref. plus stem]
Kir-Abb: TEMEIN mbu, PL. kimbik "big"

86. *mboː "by, with"
KUNAMA -bu, -mmu "by (means of)"
Sah: KANURI -mb- IN mben "through, via, towards" [stem plus NS associative *-ɛːni (affix 84 in Chap. 7)]
Maban: MASALIT -mbo "with"

87. *mbód "chest"
Koman: UDUK àbòr "chest" [NS *a- n. deriv. pref. plus stem]
FOR bòrà "milk" [stem plus NS *-ah n. deriv suff.; semantics: "chest" > "breast" > "milk"]
Astab: Taman: SUNGOR mbol "breast"
Kir-Abb: GAAM bɔ̀rà "shoulder" [stem plus NS *-ah n. deriv. suff.]
Kir-Abb: C.Jebel : MOLO bureda "shoulder" [stem plus NSud *t̪ n. suff.]

For meaning implies an earlier innovation, "breast," found also in Taman; but since Taman speakers have long been neighbors of the For, areal influences seem the probable explanation of the common shift.

88. *mbók' "to take, take out"
CSud: PCS *mbɔ "to grasp"
Sah: KANURI mbák "to pull out"
SONGAY bóỳ "to drive herd" [stem plus NS *-i itive; semantics: to take TO (pasture)]
Astab: Nub: DONGOLAWI bokk- "to unload, remove load from"
Kir-Abb: Nil: ENil: BARI mɔk- "to catch, grasp (seize and hold)"
Kir-ABB: Nil: SNil: NANDI mukut "to take up a little at a time" [stem plus NS *tʰ v. cont.]
Rub: PRub *buk'- "to marry" [semantics: < to take (a wife), a common eastern African derivation of verbs for "to marry"]
Rub: IK bɔk'átín, PL. bɔk'ɛt "bride" [stem plus NS *tʰ n. suff.]

89. *mbɔ̂ "short"
CSud: MM: LUGBARA mbóróá "too short (said of remnant of naturally longer thing)" [stem plus NS *r modif. affix plus CSud *-a dimin. suff.]
KUNAMA bota- "to diminish" [stem plus NS *tʰ cont. as deadj.]
Sah: KANURI mbàú (H) "to decline, become fewer" [stem plus NS *-uh ven.?]
FOR bùttè "short" [stem plus NS *tʰ n. /adj. suff.]
SONGAY buna (GAO) "small" [stem plus NS *n modif. affix]
Kir-Abb: Nil: WNil: OCOLO mɔyo rɛ "to waste away" (rɛ REFL.) [NS *'y ess.-act. as deadj.]

90. *mbɔ̂ "to lap"
CSud: PCS *mbo "to lick"
CSud: ECS *mbu "to drink" [presumed pre-PCS *mbow, stem plus NS *w punc.]
Sah: KANURI -mb- "to suck" (yìmbò)
FOR *ba- "to drink"
Kir-Abb: Nil: WNil: NAATH muʊm "to swallow as fish does the bait" [stem plus NS *m iter. concis.]

91. *mbùθ "to decay, wear out"
KUNAMA bušuku- "to collapse, fall apart" [stem plus NS *kʰ iter.]
Sah: KANURI mbès "to rot (eggs, bone, grass, but not fruit or meat)"
Astab: Taman: TAMA məsíː "rotten" [stem plus NS *'y n./adj. deriv. suff.]
Kir-Abb: Nil: ENil: MAASAI [musánà "old, worn out (of things)": LOAN from NS language in which NS *θ > *s (Rub?)] [stem plus NS *n adj. suff.]
Kir-Abb: Nil: SNil: Kalenjin *mutuːs "blunt, dull" [stem plus SNil *-Vːn n./adj. suff.]
Rub: IK masan "rotted" [stem plus NS *n adj. suff.; NS *u > /a/ is as yet unexplained]
Rub: IK [ɓuɓusán "to rot, of fallen trees": LOAN (expected *mus-)] [partially redup. stem plus NS *n adj. suff]

92. *mbwà̀ "to bear (young, fruit, etc.)"
Koman: UDUK bwà "to be pregnant, conceive"
Koman: UDUK bwáɗ "to form ears (of grain)"   [stem plus NS *ḷ intr.]
KUNAMA bu- "to blossom, bud"
Sah: KANURI -àmb- "to bear, beget, produce
    (fruits)" (yàmbó, tàmbó)
FOR *bai- "to beget"   [stem plus NS *-i itive]
Rub: PRub *bɔn- "to raise young" (IK bɔn- "to feed, [stem plus NS *n dur.]
    look after"; SOO bɔn- "to bear (child)")

93. *mbwá OR *mbwáh "to be immersed"
CSud: PCS *mbɔ "to be immersed"
Sah: KANURI mbá "to swim, float"
Astab: NARA mba: "water"
Kir-Abb: Nil: WNil: NAATH mwaa "to drown"

Other possible reconstructions: *mbwā or *mbwāh. Vowel correspondence shows that Nara
word belongs here and *not* under root 83 above.

94. *mbwè̀ "abdominal cavity"
Koman: UDUK bwà "belly; in (adv.)"
Koman: GULE a-buun "belly"   [stem plus NS *n n. suff.; initial a- =
                                                      NS *a- attrib. pref.?]
CSud: PCS *mbu "(middle of) body, torso"
SONGAY bùtè "vulva"   [stem plus NS *tʰ n.suff.]
Maban: MIMI bok "belly"   [stem plus Maban *-k n. sing. marker]
Kir-Abb: GAAM bɔn "heart, soul"   [stem plus NS *n n. suff.]
Kir-Abb: Nil: ENil: TESO a-moeten, PL. a-moetek   [stem plus NS *tʰ n.suff.]
    "entrails"
Kir-Abb: Nil: ENil: BARI mɔyɔk "contents of goat's   [stem plus NS *kʰ pl. marker]
    stomach" (pl.)
Kir-Abb: Nil: SNil: Kalenjin *mɑ: "belly"
Rub: IK bɔ "large intestine"

Probable Eastern Sahelian innovation: shift of application of root from external to internal features
of abdomen. The Kalenjin meaning "belly" can be argued from the other Nilotic attestations to
have been a shift in the opposite direction, independently reinstating the earlier sense.

95. mbwɛ̀:m "waist, loins" [root 94 plus NS *m n. suff.]
Koman: UDUK bwàmán "middle, inside, between,   [stem plus NS *n modif. affix]
    below, under"
CSud: ECS *mbu "(small of) back"
Sah: KANURI bámbám "mons Veneris, pubis"   [redup. stem with presumed dissimil. of
                                                      1st of two identical nasal clusters]
Kir-Abb: GAAM bɔmɔrd, PL. bɔmɔrg "small of   [stem plus NS *r n. suff.]
    back"

CSud: MM: LUGBARA mà "for, of" (postp.)
Maban: MASALIT -m << dative marker >>
Astab: NARA -(a)mma << genitive marker >>

97. *ma OR *ma: "to produce water"
CSud: PCS *ma *to rain"
Sah: ZAGHAWA, BERTI ma "well"
Kir-Abb: proto-Daju *ma "water"
Kir-Abb: Surmic *ma "water"

Apparent Saharo-Sahelian semantic innovation: The derivation of a noun for natural waterhole
from the verb at the Saharo-Sahelian stage would plausibly account for the development of the
meaning "well" (a human-made waterhole) in the Eastern Saharan languages and the generalization
of the noun to "water" in the Eastern Sudanic reflexes. The Daju and Surmic reflexes contrast in
distribution with proto-Kir-Abbaian *pʰey "water (see root 625) found in Gaam, Bertha, and
Nilotic, and so form possible evidence for a Surma-Daju subgroup within the Kir branch of Kir-
Abbaian. Other evidence conflicts with this solution, however (see Ehret 1983a).

98. *ma, *mi << interrogative stem >>
Sah: KANURI ŋgàmà "why?"   [NS *ŋga dem. of topic (root 486) plus
                                                      stem]
SONGAY méy "who?"   [*may, stem plus NS *y n. suff.]
Maban: MABA ma "est-ce-que" (participle used in
    interrogative constructions)
Astab: PNub *min- "what?"   [2nd stem plus NS *n n. suff. or else
                                                      *ne dem. (root 256)]
Astab: Nub: DONGOLAWI -mɛn- "why?"   [probably *mayn-, extended shape seen
                                                      in Songay plus *n as in PNub min-]
Astab: Nub: NOBIIN mí "why?"
Kir-Abb: proto-Daju *mina "who?"   [stem plus NS *n n. suff.]
Kir-Abb: Nil: WNil: OCOLO ma, ama "because"   [NS *a- attrib. pref. plus stem; seman-
                                                      tics: presumes earlier sense "why?"]
Kir-Abb: Nil: WNil: NAATH mɪn "when?"   [2nd stem probably *ne dem. (root
                                                      255), formed by analogy to root
                                                      101, *mane]

Possible Eastern Sahelian innovation: addition of *n suffixation to second stem. The distribution
of its derived root 101 shows this root to have been more ancient than cited evidence allows.

99. *má: "to pay attention, be on the lookout"
CSud: PCS *ma "to watch, wait, look"
Sah: KANURI má "to seek, look for"
SONGAY má "to hear, feel"
Kir-Abb: BERTHA (M) má:d-, (F) mó:d- "to know"   [*ma:wd-, stem plus NS *w punc. plus
                                                      NS *tʰ cont.; NS *tʰ > BERTHA d
                                                      /NV:_-# (see also root 250)]
Kir-Abb: NYIMANG mâi- "to know"   [stem plus NS *'y ess. -act.]

Kir-Abbaian semantic innovation: "to know." The Kir-Abbaian meaning in turn requires a prior
meaning change, shifting the reconstructible concrete reference of the verb from "being on the
lookout" to the actual seeing or hearing of something. The Songay reflex shows the necessary
shift—specifically to hearing, feeling—from which the attested Kir-Abbaian meaning "to know"
can directly be derived ("to hear" > "to understand," hence "to know")—thereby placing that prior
semantic innovation at the proto-Sahelian period.

100. **máɗ*   "to join together, assemble (intr.)"

Koman: UDUK máḍɪ̃ny "flock" [stem plus NS *ɲ n. suff.]
CSud: PCS *andra "to join, connect" [CSud *a- tr. pref. plus stem]
Kunama: ILIT amar-a "big" [NS *a- attrib. pref. plus stem]
Sah: KANURI máré "emphatic particle" [stem plus NS *y n./adj. suff.]
Sah: ZAGHAWA már- "to ripen" [semantics: to increase > to grow > to grow up, mature, hence "to ripen"]

SONGAY márgán "to join, assemble, amass, gather" [stem plus NS *k caus. plus *n dur.]
Kir-Abb: Nil: WNil: NAATH mat "to multiply, add"
Kir-Abb: Nil: ENil: BARI maḍo-ju "to climb (tree without branches)" [stem plus NS *w punc. (?); semantics: "to increase" > "to rise, go up"]

Northern Sudanic innovation: A shift from the action itself of assembling to its consequence, increasing in size, number, or amount is evident in all the simple, unextended forms of the root in the Northern Sudanic languages.

101. **mánē* OR **máné*   "where?" [root 98 plus *ne "here" (root 256)]

Koman: UDUK máná, máné "where?"
SONGAY máñ "where?"
Kir-Abb: Daju: LAGAWA man- IN mandida "where?"

102. **máːŋ*   "to oscillate, move back and forth or up and down"

Koman: UDUK màŋàs "to travel back and forth, to wander" [stem plus NS *s prog.]
KUNAMA -maɲ- "to evade, get mixed up" [possible derivation: *maŋ-y-, stem plus NS *'y ess.-act.; but may be instance of Kunama *ŋ/*ɲ alternance]
Kir-Abb: Nil: WNil: NAATH maŋ "wave"
Kir-Abb: Nil: SNil: BARABAIG mὲ:ŋê:da, PL. mé:ngà "wing" (< PSNil *máːŋ-) [semantics: wing is appendage that flaps, i.e., moves up and down]

103. **máːŋk*   "to do wrong"

Koman: UDUK mákʰ "deceit"
KUNAMA mangela "sin, wrong" [stem plus NS *l or *l̥ n. suff.)
Astab: Nub: DONGOLAWI maːg "to steal"
Kir-Abb: Nil: ENil: MAASAI ɔl-máŋátintá "enemy" (PL. ɪl-maŋáti) [stem plus NS *tʰ n. suff.]

104. **máŋkʰ*   "to gather together, put together"

Koman: UDUK mákʰ "to pile"
KUNAMA mako- "to glean, gather" [possible loan? (expected *mank-?)]
Sah: KANURI mánjíl "to attach, bind tightly" [stem plus NS *l iter. (Kanuri intens.)]
Kir-Abb: Nil: WNil: OCOLO mak "to catch, fasten"
Kir-Abb: Nil: ENil: TESO -makakin "to stick, fix" [stem plus Ateker *-akin benef.]

Saharo-Sahelian semantic innovation: shift from loose putting together to putting tightly together.

105. **mānt̥*   "to wet" (root 97 plus NS *n dur. plus NS *t̥/*t̥' caus.]

KUNAMA mantata "fluid excrement" [stem plus NS *tʰ n. suff.]
SONGAY mèndì "to seep, leak" [stem plus NS *-i itive]
Kir-Abb: Temein: JIRRU mat̥ili "to drink" [stem plus NS *l iter.]
Kir-Abb: PNil *mat̥ "to drink" (MAASAI -mát)

Rub: IK ɪmatáŋ- "to chew tobacco" [*i- v. class pref. plus stem plus NS *ŋ punc.]

Eastern Sahelian semantic innovation: shift to a particular kind of wetting, namely, with the mouth. The Kir reflexes (Temein and Nilotic) show a further narrowing, to drinking. This form is NOT congnate with the Jebel reflexes of root 119 despite their surface resemblances in pronunciation.

106. **máwɲ*   "liver"

Maban: MABA moɲik "liver" [-k is Maba n. sing. suff.]
Kir-Abb: proto-Daju *muce "liver" [< *munce, stem plus Daju *-ce n. sing. suff., with usual Daju nasal deletion]

Kir-Abb: Surmic: SWSurmic: TIRMA [maːɲi "liver": loan from ENil (Ateker)]
Kir-Abb: Mil: PENil *-máúɲ- "liver"

107. **màːwr*   "ox"

Koman: UDUK [mòr- "castrated animal": LOAN (NS *aːw > UDUK aa), probably from Nil]
Maban: MABA marak, PL. marše "ox"
Kir-Abb: GAAM mɔrà "herd of cattle" [stem plus probably NS *-a pl. marker as pl. or coll.]

Kir-Abb: Surmic: SWSurmic: DIDINGA mwōlit, PL. maala "ox"
Kir-Abb: PNil "mɔːʀ "ox" (WNil: JYANG muɔr, PL. mior "ox"; PSNil *mɔːʀ "calf")

108. **máːws*   "finger, toe"

CSud: PCS *nzɔ "foot/leg" [semantics: "toes" > "foot"]
CSud: ECS *nzɔ "to step" [presumed derivation < CSud n. for "foot" by morphological operation no longer present on the surface]

Sah: KANURI múskò "hand/arm" [stem plus NS *k singul. suff. (hand is unit to which the fingers belong)]

SONGAY móosì "nail, claw"
SONGAY kòmsì "foot of cattle"
Astab: Taman: TAMA maːse "five" [NS *kʰ n. pref. plus stem]
Kir-Abb: GAAM mɘɘsí "nail, claw" [stem plus NS *-eh n./adj. deriv. suff.]
Kir-Abb: C.Jebel: AKA misɛ, MOLO musɛnɛ, KELO musu "nail, claw"
Kir-Abb: BERTHA (W) maːšu "nail, claw"
Kir-Abb: Nil: WNil: NAATH miɔt "hoof" [< *mɔti]
Kir-Abb: Nil: WNil: JYANG muot "hoof"
Kir-Abb: Nil: SNil: AKIE mɔ́ːtɔ́ːliɛː "nail, hoof" [stem plus NS *l or *l̥ n. suff. plus NS *'y n. suff. (plus SNil 2ndary suff. of n.: *ia + -t > AKIE -iɛː)]

Probable Sahelian semantic innovation: shift of the meaning of this root to "nail, claw." The Tama meaning "five" is better derived, however, more directly from the meaning "finger." So it is also possible that the shift occurred twice, once in Songay and again in the proto-Kir-Abbaian language.

109. **máwθ*   "to do gently, softly"

KUNAMA maša- "to speak softly"
SONGAY móssó "to wait a brief moment"

SONGAY móss-móssó "to do slowly" [redup. stem as iter.]
Kir-Abb: proto-Daju *məcədə "slow" [stem plus NS *ţ n./adj. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO maaţ "gently, slowly" [V correspondence is not yet explained]
Kir-Abb: Nil: ENil: TESO motimot "slowly" [adj./adv. by redup. of stem]
Rub: IK [mɔs- "to be neither wet/fresh nor dry": [i.e., be somewhat soft]
  LOAN (expected *mɔ́s-)]

Sahelian semantic innovation: A shift in meaning from "do softly" to "do slowly" is evident in all the cited Sahelian attestations, except for the borrowed Rub word.

110. *mày OR *máy "to chew up"

Koman: UDUK màà "food"
Koman: GULE m-əs "to eat" [stem plus -əs suff. (inf.?) seen in other Gumuz verbs]

KUNAMA ma, ILIT may-a "tooth"
KUNAMA me- "to swallow"
SONGAY mê, PL. míyó "mouth" [*mayh, stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: Nil: WNil: NAATH mɛt "to taste" [stem plus NS *tʰ cont.]
Kir-Abb: Nil: ENil: TESO -me "to lick"

111. *mé OR *méh "to twist, bend"

CSud: PCS *me "to twist"
Sah: KANURI mət "to form in balls [stem plus NS *tʰ cont.]
Kir-Abb: GAAM méé- "to spin (cotton, etc.)"
Kir-Abb: TEMEIN mis, PL. kimaa "rope" [semantics: rope is made by plaiting]
Kir-Abb: Nil: WNil: NAATH mɛn "to weave (fishnet)" [stem plus NS *n dur.]

Kir-Abbaian semantic innovation: "to twist" > "to plait, weave (rope, string, thread, net)."

112. *méːɗ OR *méːɖ "body, self"

Koman: UDUK mèɗ "self"
CSud: PCS *ndi "body, self"

113. *mèːntʼ OR *méːntʼ "palm , paw"

Koman: UDUK mèɗ "finger"
KUNAMA minda "foot, paw, leg"
Kir-Abb: proto-Daju *məɗək "five" [stem plus NS *k adj. suff.]
Kir-Abb: Nil: ENil: Lotuko-Maa *miet "five" [vowel sequence remains to be fully explained; possibly *e: > ie /#C_NC ?]

Kir semantic innovation: derivation of numeral "five" from this root.

114. *méŋk OR *méŋkʰ "ram"

Maban: MABA minji "sheep (pl.)"
Kir-Abb: Nil: ENil: MAASAI [ol-meregeš "ram": [see SNil reconstruction for derivation]
  LOAN from early SNil]
Kir-Abb: Nil: ENil: Ateker *merek(ek)- "ram" [presumed metathesized *mekeʀ, stem plus NS *r n. suff. (see Kalenjin entry for same apparent Nilotic history of this root)]

Kir-Abb: Nil: SNil: Elgon-Mau *meːnkic "ram" [< earlier *meʀe(n)kic, stem plus NS *r n. suff., with metathesis (as in Ateker form of root), plus NS *tʰ n. suff.; /n/ is Kalenjin addition here]

Rub: SOO mék "ram"

Other possible reconstructions: *mēŋk or *mēŋkʰ.

115. *méːy "to make, do"

Koman: UDUK míí "to make, use, do; necessary"
CSud: PCS *mi "to do, make:
KUNAMA mina- "to do, make" [stem plus NS *n dur.]
Maban: MABA -me- "to invent, make up"
Kir-Abb: TEMEIN m- "to do, make"
Kir-Abb: Daju: SHATT men- "to build" [stem plus NS *n dur.]
Kir-Abb: Nil: SNil: AKIE imíːt "to do" [*i- v. class pref. plus stem plus NS *tʰ cont.]
Rub: IK mɪt- "to be, belong to, become" [stem plus NS *tʰ cont.]

116. *meːytʼ "to cover up"

Koman: UDUK [ámɪs "clam-shell spoon": LOAN from NS language in which final *T > s]
CSud: PCS *mi "to cover up" [reconstruction with a low tone here is provisional]
SONGAY cèmsé "tortoise shell; potsherds, calabash sherds" [< *kemse < *kemiise, NS *kʰ n. pref. plus stem]
Maban: MABA mesek, PL. mestu "house" [semantics: house as a shelter or covering]
Rub: PRub *mẹc "shell, sheath, covering" (IK míts'á-)

Sahelian innovation: A shared noun *méːyţʼ "shell, hard covering layer," possibly derived by tonal shift in the verb root, can be reconstructed from the Songay and Rub reflexes.

117. *mɛ́l "to glare, shine"

KUNAMA amela "day" [NS *a- attrib. pref. plus stem]
SONGAY mélí "lightning" [stem plus NS *-ih n. deriv. suff.]
Maban: MABA menuek "star" (-k is Maba n. sing. suff.) [stem with common Maba nasal assim. (*l > n /#mV_) plus NS *w n. suff.]
Kir-Abb: BERTHA milot "firefly" [stem plus NS *ţ n. suff. (/ḍ/ > [t] /_#)]
Kir-Abb: PNil *mɛl "to glare, be scorching" (WNil: OCOLO mɛl "to be hot, dried up"; ENil: TESO -mɛl "to glare, shine"; SNil: NANDI mɛl "to scorch")

118. *mɛ́l "to increase

KUNAMA mila- "to grow (of grass, hair)"
Astab: PNub *mall- "all" (NOBIIN màllée) [Nobiin: stem plus NS *y n./adj. suff.]
Kir-Abb: GAAM mə́l- "to accumulate"
Kir-Abb: BERTHA (W) mɪllaŋ "many"
Kir-Abb: proto-Daju *malle "herd"
Kir-Abb: Surmic: S.Surmic *mɛR- "many" [stem plus NS *ŋ n./adj. suff.]

Apparent Eastern Sahelian semantic innovation: shift of focus of verb from increasing in size to increasing by becoming many.

119. *mé:ḻ "to lick"

KUNAMA mela- "to lick the lips"   [stem plus NS *-a dispunc.]

Sah: KANURI məlát "ideophone of licking action"   [stem plus NS *-a dispunc. plus *tʰ cont.]

Maban: MABA -mel- "to lick"

Kir-Abb: GAAM mə́l- "to drink"

Kir-Abb: C.Jebel: AKA mɛɛt-, MOLO moot-, KELO məd- "to drink")   [NOT cognate with Kir *maṭ "to drink" (see root 105), despite surface resemblances; regularly corresponding C. Jebel reflex would be *ṃat-)]

Kir-Abb: BERTHA mé:r- "to drink"

Kir-Abb: PNil *mɛlʸ "to lick" (ENil: MAASAI -méj; PSNil *mɛ:lʸ)

Jebel semantic innovation: shift, probably in two stages, from "to lick" to "to lap" to "to drink," is attested in the Gaam, Central Jebel, and Bertha reflexes.

120. *mɛn OR *mɛ:n "neck; voice"

KUNAMA mena "neck; voice"

Kir-Abb: proto-Daju *amice "neck"   [NS *a- attrib. pref. plus stem plus Daju *-ce sing., with typical Daju nasal simplification: *amenice > *amnice > *amice; see also root 106]

Kir-Abb: Nil: WNil: OCOLO mën "nape"

Rub: IK mɛn "word, matter, news"

Possible Kir semantic innovation: Daju construction indicates another meaning for the simple root in pre-Daju, presumably "nape" or "throat" or the like. If the former, then the Ocolo and Daju reflexes would share an earlier common shift from "neck" to "nape."

121. *mɛɲ / miɲ "to seep, leak"/"to drip, flow, run" '

    [stem *mɛ seen also in root 126 plus NS *ɲ extend.]

Koman: UDUK mànya' "saliva, spittle"   [stem plus NS *-Vh n. deriv. suff.]

CSud: PCS *mi "to be immersed"

SONGAY ménné "to melt, dissolve"   [stem plus NS *n dur.]

SONGAY mènnè "movement of liquid, current of river"   [n. < Songay v. by tone shift]

Astab: Nub: Diling miɲ "to drip"

Kir-Abb: GAAM məɲ- "to anoint"

Kir-Abb: GAAM məɲəl "fog"   [stem plus NS *l n. suff.]

Kir-Abb: Nil: SNil: Kalenjin [*m̃eɲ "potting clay": LOAN from Rub (expected mɛɲ)]

Rub: IK mɛɲy "mud"

For other examples of this root vowel alternance and a discussion of its semantic effects, see note to root 126.

122. *mɛntʰ OR *mɛnṭʰ "to pull off pieces(s) of"

CSud: ECS *nde "to pull apart"

KUNAMA menta-, manta- "to pull of piece of"

SONGAY mènté "to castrate"

Astab: Taman: TAMA mɛ:t- "to tear"

Other possible reconstructions: *mɛntʰ or mɛnṭʰ.

123. *mɛr "narrow, thin"

Koman: UDUK màràd "to decrease in size, subside"   [stem plus NS *ḻ intr.)

CSud: PCS *ndre "sharp-pointed

KUNAMA merka "small (of animals)"   [stem plus NS *k adj. suff.]

SONGAY mèrì "to be pointed, sharp, thin"   [stem plus NS *'y ess.-act. (*-i'y)?]

Astab: NARA merg-, marg- "to be old"   [stem plus NS *kʰ intr.?: semantics: "thin" > "weak" > "old, aged"]

Astab: Nub: DONGOLAWI maris "scanty in qualtity or number, little, few"; NOBIIN márís "little, few"   [stem plus NS *s n./adj.suff.]

Kir-Abb: Nil: SNil: Kalenjin [*marı:c "narrow": LOAN (expected *mɛR-)]   [stem plus NS *tʰ, *ṣ, or *'y n./adj. suff.]

124. *mɛ:r "to err, do badly"

CSud: ECS *ndrɛ "to err"

Sah: ZAGHAWA mɛr- "to forget"

SONGAY méerí "to be ugly"   [stem plus NS *'y ess.-act.?]

Astab: Nub: DONGOLAWI [mɛrs- "beer"; LOAN (expected *mar-)]   [stem plus NS *s n. suff.]

Astab: Nub: DONGOLAWI [mɛ:rɛl "curdled, sour (of milk)": LOAN (expected *ma:r-)]   [stem plus NS *l n. suff.]

Astab: Nub: DONGOLAWI [mɛ:r- "to ferment": LOAN (expected *ma:r-)]

Kir-Abb: Surmic: DM [*mɛrt- "beer"; LOAN (expected *mɛl-)]   [stem plus NS *tʰ n. suff.]

Kir-Abb: Nil: ENil: TESO -mɛrıkın "to become tarnished"   [stem plus Ateker benef.]

Kir-Abb: Nil: PSNil *mɛ:R "to die"

Sahelian semantic innovation: A shift of application of the verb from transitive uses to the intransition and its products, appears to have developed early in some unidentified part of the eastern sudanic region. In meanings connected with fermentation, it then diffused widely, presumably with the diffusion of beer-making, as the Didinga-Murle and Nubian borrowings attest.

125. *mèrí h "leopard"

SONGAY mèrí "leopard

Astab: Taman: TAMA mılık, PL. mılıoŋ "leopard"

Kir-Abb: GAAM mə́ré "wildcat"   [stem plus NS *y n. suff. (*mɛrihəy > *mɛre); tone shift presumably as consequence of suffixation]

Kir-Abb: BERTHA [mɛrú "cat": LOAN (expected *mɛl-?)]   [stem plus NS *-uh n. suff.]

Kir-Abb: Nil: PSNil [*meril "leopard": LOAN from Rub]   [vowel category shift, *ɛ > *e, is a SNil assim., after borrowing]

Rub: PRub *mɛrit "leopard" (NYANG'I mɛríɫ; SOO mɛriat < *mɛrirat < *mɛriɫat; IK mɛriɫan "having a mixture of colors")   [stem plus NS *l n. suff.; Soo reflex shows progressive liquid assim., after PRub *ɫ > Soo l: *mɛriɫat > mɛrirat, with regular Soo loss of 2nd *r); Ik: n. plus NS *n adj. suff.]

126. *més / mís "to drip"/"to sprinkle" [stem *mε seen in root 121 plus NS *s prog.?]

Koman: Gumuz: SAI mənzima "wet"; KOKIT minzima — [double affixation of NS *m adj. affix to stem (*mV- + mis + -Vma > *mimi-sima > *minzima) as commonly in Gumuz]

CSud: PCS *nzε "to flow"

KUNAMA miši- "to drizzle, drip"

SONGAY mímísí "fine rain; pluvioter" — [partially redup. 2nd stem]

SONGAY mémésé "to ooze, seep, drip" — [partially redup. 1st stem]

Astab: Nub: DONGOLAWI misse "to sprinkle, be-spatter" — [stem plus NS *'y ess.-act. (*-ay)]

Kir:Abb: Nil: WNil: NAATH mεt "anus"

This is one of a number of instances in which alternant shapes of a Nilo-Saharan root must be re-constructed—the shape with a high vowel having an intensive or iterative sense and the shape with a mid vowel lacking that sense or not having it as fully. For other proposed examples, see roots 121, 157, 404, 802, 805, 1260, 1261, 1304, and 1344 and also a paired set of roots, 1259 and 1267.

127. *mεṣ "tick"

KUNAMA mensa, amemesa "tick" — [1st entry: < *memesa, partially redup. stem; 2nd entry: NS *a- n. pref. plus partially redup. stem]

Sah: TUBU *masko "louse" — [stem plus NS *k n. singul. suff.]

Maban: MABA meselek, PL. mesele "louse" — [stem plus NS *l or *ļ n. suff.]

Kir-Abb: PNil *maceʀ OR *mecer "tick" (ENil: Maa-Ongamo *-maceri, LOTUKO ameseri, PL. amεsεr, BARI masiret, PL. masεr; SNil: DA-TOGA masjo:da < *mace- or *mecεr-o:ta) — [stem plus NS *r n. suff.]

The shared meaning shift in Tubu and Maba is best considered as two parallel (although in view of the proximity of Tubu and Maba speech areas to each other, not necessarily independent) innova-tions, since a separate historical sequence of root words for "louse," in keeping with the Nilo-Sa-haran history argued for in Chapter 4, can be adduced: *tʰiL (root 808) for Sudanic and Northern Sudanic stages, *gεn (root 443) for the Sahelian down to Eastern Sahelian periods, and separate roots, *ṣeytʰi (see under root 1186) and *ṭ'εnkw (root 746), for the respective Astaboran and Kir-Abbaian offshoots of Eastern Sahelian. The *ṣeytʰi root is found in Tama and Nara, but not in the languages in between, and so constitutes an especially strong piece of CV evidence for the validity of Astaboran; see Ehret 1983: 404-405.

128. *mὲːt "to rise"

CSud: *nde "to widen, thicken"

Sah: KANURI màr "to recover (from illness)"

Kir-Abb: GAAM məd-ə(n) "big" — [stem plus NS *-Vh n./adj. deriv. suff.? (plus NS *n modif. suff.)]

Kir-Abb: NYIMANG mεdέ "hill" — [stem plus NS *-Vh n. deriv. suff.?]

Kir-Abb: Nil: WNil: OCOLO mὲt "to increase, add to"

129. *min "to be small"

Sah: ZAGHAWA minnai "small" — [stem plus NS *y n./adj. suff.]

FOR màndín "meager" — [stem plus probably NS *tʰ cont. plus NS *n modif. suff.; stem /a/ remains to be explained (possible earlier *minat- as in Maasai reflex)]

Kir-Abb: Nil: ENil: MAASAI mεnàtì "feeble" — [stem plus NS *tʰ n. /adj. suff.]

Kir-Abb: Nil: ENil: BARI lɔmɪn "narrow (of size)" — [BARI lo-/lɔ- adj. deriv. pref. (NS *l) plus stem]

Kir-Abb: Nil: PSNil *minaŋ "small" — [stem plus NS *ŋ n./adj. suff.]

Rub: SOO [manaŋ "small": LOAN from SNil (Pokot)]

130. *mìːr OR *míːr "darkness"

CSud: ECS *ndri "shadow"

Kir-Abb: BERTHA (M) mìːlí "black" — [stem plus NS *-Vh n./adj. deriv. suff.]

Kir-Abb: Nil: WNil: NAATH mir "evening"

Rub: Wn Rub *miir "night"

131. *miṣ "to obscure, cover from view"

CSud: PCS *nzi "shade, shadow; soul; spirit"

SONGAY misgàm "to disappear" — [stem plus NS *k intens. plus NS *m iter. concis. (as intr.?)]

Astab: Nub: DONGOLAWI mišš- "door post" — [semantics: "door" > "post of door"]

Kir-Abb: Nil: WNil: OCOLO mic "to shut (eye, hand)"

Kir-Abb: Nil: ENil: MAASAI [-mismis "to be dark": LOAN (NS *ṣ > Maasai /š/)] — [redup. stem]

Kir-Abb: Nil: SNil: Kalenjin [*miːs "to extinguish"; *mi:sun "darkness": LOAN (expected *mic-)] — [stem plus NS *n n. suff.]

Probably Eastern Sahelian semantic innovation: Dongolowi and the legitimate Nilotic cognate (Ocolo) share an underlying semantic shift to the meaning "to shut." The Maasai and Kalenjin bor-rowed forms of the root presumably come from a non-Eastern Sahelian language since they imply obscuring caused by lack of light, a different direction of semantic change. The Maasai form probably was adopted from a Southern Nilotic source.

132. *mí'y "to smell (intr.)"

KUNAMA amimita "stink-ant" — [NS *a- attrib. pref. plus redup. stem plus NS *tʰ n. suff.]

KUNAMA mi- "to rot, sour, stink"

KUNAMA mimi- "to be stinking" — [redup. stem]

FOR maaŋ- "to smell" — [stem plus NS *ŋ punc. (< *miaŋ-)]

FOR maŋŋa "bad-smelling" — [v. stem plus For *-CV marking of adj., where C = final stem C]

Astab: Taman: TAMA εmit, PL. εmε "nose" — [assim. shape of NS *a- attrib. pref. plus stem]

Kir-Abb: Nil: SNil: DATOGA mís "to smell" — [< pre-Datoga *mic]

Rub: IK mídz-on "perfume" — [verbal n.?; < pre-IK *mi'j-]

Rub: IK mídzat- "to smell (intr.)" — [stem as in previous Ik entry plus NS *tʰ cont.]

The Datoga reflex may be a loanword from Rub or alternatively a regular cognate.

133. *mớ "to give off heat, glow"

CSud: PCS *mo "to burn low"

Sah: KANURI màk "to apply heat to body" — [stem plus NS *k caus. suff.]

Sah: KANURI kàmágə́ "heat" — [NS *kʰ n. pref. plus Kanuri v. stem plus NS *-Vh n. deriv. suff.]

SONGAY mò "dawn" — [probably *moh, stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: GAAM mớớ "fire" — [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: C.Jebel *maa "fire" (AKA maa, MOLO, KELO ma "fire" — [structure as in Gaam]

Kir-Abb: BERTHA (F) mò:, (W) mù "fire" — [structure as in Gaam]

Kir-Abb: proto-Daju *maase "fire" — [structure as in Gaam, plus ESud *s sing. suff.]

Kir-Abb: Surmic: MAJANG ma:t "fire" — [structure presumably as in Gaam, plus NS *tʰ n. suff.]

Kir-Abb: PNil *ma "fire" (PWNil *maːc; PENil *kɪma; PSNil *ma) — [WNil: n. derived as in Gaam, plus NS *tʰ n. suff.; ENil: NS *kʰ n. pref. plus noun stem derived as in Gaam

Kir-Abb: Nil: ENil: TESO -mo "to give off heat"

Kir-Abb: Nil: ENil: TESO -mwana, PL. -mwaka "hot" — [v. stem plus number suffixes]

Kir-Abbaian morphological cum semantic innovation: The various Kir-Abbaiian nouns for "fire" can all be explained as deriving from *moah, stem plus NS *-ah n. deriv. suff. In the Kir branch of Kir-Abbaian, a further innovation, in phonology, took place by which *moah > *mah.

134. *mŏá'y "to heat up" [root 133 plus NS *'y ess.-act.]

CSud: PCS *moe "to glow, be hot"

Sah: KANURI mé "to catch fire" — [*moa'y > *moɛ > pre-Kanuri *mɛ:]

Kir-Abb: Nil: SNil: NANDI ma "to put in sun" (*ma)

135. *mŏɗíh "dung of domestic animal"

Sah: KANURI máⁱ "horse dung"

SONGAY mórgèy "sheep dung" — [stem plus NS *k n. singul. (because sheep dung occurs in many individual lumps) plus NS *y n. suff.]

Kir-Abb: Nil: ENil: Lotuko-Maa *módí "dung"

136. *móɖ "to deceive"

Koman: UDUK múṭ' ē "to deceive" (ē "amid")

Koman: UDUK múɗìnyc'ērē' "deceivingly" — [compound of stem plus 2nd root of as yet unidentified origin, with epenthetic nasal as in other Uduk compound words]

KUNAMA marai- "to tell a lie" — [stem plus NS *'y ess.-act. suff.]

Astab: Nub: DONGOLAWI murs- "lie, falsehood" — [stem plus NS *s n. suff.]

Kir-Abb: PNil *mɔɖ "to deceive" (WNil: NAATH mɔṭ "plot; secretly"; ENil: TESO -mɔd "to trick, cheat, deceive")

Rub: IK [ɪmɔɗ- "to cheat, deceive": LOAN from Ateker (NS *ɖ > Teso [ɗ], Ik [d])] — [*i- v. class pref. plus stem]

137. *mó:ɖ "to close"

Koman: UDUK múṭ' "to shut"

KUNAMA [morko- "to hide (intr.)": LOAN (expected *murk-)] — [stem plus NS *kʰ intr.]

Astab: PNub *mó:r- "to bind, tie up, fasten" (Nobiin mòor-)

Kir-Abb: GAAM [múr- "to close": LOAN from NS language in which *ɖ > r (*ɖ > GAAM ɫ /V_-)]

Kir-Abb: NYIMANG mɔd-ì "to tie"

Kir-Abb: PNil *mo:ɖ "blind (person)" — [semantics: shut (of sight), as also in SWAHILI kiziwi "blind person" < -zib- "to shut, stop up"]

Kir-Abb: Nil: WNil: OCOLO mwɔṭ "to hold, keep"

Rub: IK [múɗúkán- "to be blind": LOAN (expected *mód-) from Nilotic or unattested Surma] — [stem plus NS *kʰ intr. plus NS *n dur.]

Eastern Sahelian semantic innovation: A shift of application of verb from shutting or closing to fastening is present in the Dongolawi reflex and is the implied prior sense that links the meaning (Ocolo "to hold, keep" < "to bind, fasten" < "to shut"). The proto-Nilotic derived nominal "blind" reflects the earlier sense, however, and therefore probably traces back to a pre-proto-Eastern Sahelian derivation.

138. *móɠ "to twist, turn (intr.)"

Koman: UDUK mògòc' "adjective descriptive of how badly bodies were destroyed" — [stem plus NS *ṭ' iter. intens.]

CSud: PCS *ngo "to curve, bow"

CSud: ECS *ngwi "to return" — [stem plus CSud *-V v. suff. (probably NS *-i itive in this instance)]

KUNAMA magi- "to turn (intr.)"

KUNAMA [mogo-, mogogo- "to bend to the side": LOAN (from Nara?)]

Kir-Abb: GAAM mɔgɔlè- "to intertwine" — [stem plus NS *l iter. plus NS *'y ess.-act. (*-a'y > -e)]

Kir-Abb: GAAM mɔgɔrd, PL. mɔgɔrɫg "curved staff" — [stem plus NS *d or *r adj. suff. plus NS *ṭ or *ɫ n. suff.]

Kir-Abb: Nil: WNil: NAATH mʊk "to reverse"

Rub: IK mó'jír- "to twist" — [stem plus NS *r iter., with IK palatal shift, *ɠ > *'j /_i]

139. *mò:ɫòh "lower abdomen"

KUNAMA mummula "groin, lower abdomen" — [< *mulmul-, redup. stem]

Sah: KANURI kàmóló "stomach, contents of stomach" — [NS *kʰ n. pref. plus stem]

Kir-Abb: GAAM mɔɫɔ "vulva, vagina"

140. *mo:ɲ "to eat soft food"

KUNAMA muɲe- "to chew (easy-to-chew) food"

Kir-Abb: Nil: WNil: OCOLO mwɔny "to swallow (solid food)"

141. *moŋkʰ OR *moŋk' "baboon"

Maban: MABA moŋok "monkey" (unspecified kind) — [-k is Maba n. sing. suff.]

Kir-Abb: NYIMANG mógùr "baboon" — [stem plus NS *r n. suff.]

Kir-Abb: Nil: WNil: OCOLO mwɔk "baboon"

142. *mòr "to become hot"

CSud: ECS *ndro "to smoulder, burn low"

Sah: KANURI màr "to become sultry"

Sah: KANURI mèrtɔ "heat of sun" — [stem plus NS *tʰ n. suff.]

Maban: MABA mòr- "to sweat" (L)

Maban: MABA moru "sweat" — [stem plus NS *-uh n. deriv. suff.]

Kir-Abb: Nil: PWNil *mor "to warm up" (OCOLO mor "to heat, warm up"; JYANG mor "tepid")

Kir-Abb: Nil: ENil: BARI mʊr-ja "to stew; to be sultry (of house)"

143. *mòy OR *mɔ̀y   "upper part of the face, area around the eyes"

CSud: PCS *moi "eyes"

FOR kumi "face" (B)

SONGAY mòy "eye"

Astab: Taman: TAMA mɛti, PL. mɔŋ "eye"

Astab: Nub: DONGOLAWI miss- "eye"

Astab: Nub: NOBIIN máany "face"

Kir-Abb: GAAM muu, PL. muug "face"

Kir-Abb: PNil *komoam-, *komoaŋ "face" (PENil *-komwam-, *-komwaŋ-; DATOGA *qɑmɑm, *qɑmʊŋ)

[NS *kʰ n. pref. plus stem; proposed *kumoi > *kumwi > *kumi]

[sing.: *oy > *ɛ, with mid feature from *o and fronting from *y]

[stem plus probably NS *ŋ n. suff. as in Nobiin, plus NS *s n. suff. (*moians- > *mins- > *miss-)]

[stem plus NS *ŋ n. suff. *moiany > *maany)]

[NS *kʰ n. pref. plus stem plus *m and *ŋ n. suff.]

For the explanation of the meaning reconstructed here, see note to root 44. The development of the meaning "face," because of the differing derivational morphology in each instance, probably arose separately in For, Gaam, and Nilotic.

144. *mɔ̀ːɗ   "to become weary, tire out"

Koman: UKUK mùtʰà ís "to be worn out from work, pratically sick" (ís refl.)

Sah: KANURI mòlímòlímà "sickly"

SONGAY móorù "to be weary, tire"

Maban: MABA komorik "tiredness"

Kir-Abb: Surmic: DM *mor- "sick"

Kir-Abb: Nil: WNil: NAATH mɔt "to be faint"

Rub: IK moɗóɗ- "to be sleepy"

[stem plus NS *-a dispunc.]

[redup. stem plus NS *m adj. affix, since *ɗ > l/_#]

[stem plus NS *-uh n./adj. deriv. suff.; v. < presumed earlier adj. usage]

[NS *kʰ n. pref. plus stem plus -k Maba sing.]

[partially redup. stem]

145. *mɔ̀ːh   "to become fat, swell in size"

Koman: UDUK mò'òtʰámò'òtʰ "fat (adj.)"

Koman: Gumuz: KOKIT mo:'a "mountain"
CSud: PCS *mɔ "to swell up"
SONGAY máaní "to be fat; fat (n.)"

Kir-Abb: GAAM mɑ̄ɪd- "to become old (of person)"
Kir-Abb: C.Jebel *moar- "big" (AKA maari, MOLO muwari)
Kir-Abb: NYIMANG mɔ̀ "to rise"
Kir-Abb: proto-Daju *mwid- "fat (n.)"

Kir-Abb: PNil *mwaːʀ "fat (n.)" (WNil: Luo *mɔr- [OCOLO mɔw]; PSNil *mwaːʀ)

[stem plus NS *tʰ n. suff., with redup. (common process of adj. formation in Uduk)]

[stem plus NS *-Vh n. deriv. suff.]

[stem plus NS *n n. and adj. suff., with verb as back formation from nominal]

[stem plus NS *tʰ cont.]

[stem plus NS *r adj. suff.]

[stem plus NSud *ʈ n. suff., as sing. (*mo-w-it-)]

[stem plus NS *r n. suff. (*mɔːaːʀ > *mwaːʀ > PWNil *mɔːr)]

Kir-Abb: Nil: SNil: NANDI mɔ "abcess"

[semantics: abcess involves swelling of the infected area]

Kir innovation: derivation of a noun for "fat" from this root.

146. *mɔ̀ŋk OR *mɔ̀ŋk   "to be round, curved"

Koman: UDUK mòkʰámòkʰ "fat"

CSud: PCS *ŋgwi "bracelet"

KUNAMA mongolei- "to wind, go zig-zag"

KUNAMA mongora "curved"
Kir-Abb: BERTHA [mək'əš "fat": LOAN from Koman]

Kir-Abb: Nil: SNil: Kalenjin [*mukul "round": LOAN from Rub (expected *mʊŋ-)]
Rub: Wn Rub *mukul "round"

[redup. stem > adj.; semantics: fat things tend to be round or curved in shape]

[stem plus CSud *-V n. suff. (NS *-ih n. deriv. suff.?)]

[stem plus NS *l iter. suff. plus NS *'y ess.-act.]

[stem plus NS *r n./adj. suff.]

[stem plus NS *s n./adj. suff.; *k rendered as /k'/ because borrowed after NS *k > Bertha /h/]

[stem plus NS *l or *ḷ n./adj. suff.)

[stem plus NS *l or *ḷ n./adj. suff.)

147. *mɔ̀ŋk   "to leave (tr.)"

Sah: KANURI mók "to take away"

Astab: Nub: DONGOLAWI mug "to leave (tr.)"

Kir-Abb: GAAM mə́ŋə́n- "to leave, move (residence), move away"

Kir-Abb: Nil: ENil: MAASAI ɔl-mɔ́ŋɔ́ "something left over"

Rub: IK muce (mucée-), PL. mucé-ik "path, road"

[stem plus NS *n dur.]

[stem plus NS *y n. suff., with regular IK palatalization, *ke > ce; semantics: "leave" > "travel, walk," hence n. "path, road"]

148. *mɔ̀ːr   "to become large, wide, broad"

CSud: PCS *ndrɔ "long"
SONGAY móorù "to be far"

Kir-Abb: BERTHA (M) mɔrší, (F) morší "fat (adj.)"
Kir-Abb: Nil: WNil: OCOLO mɔr- "very numerous"
Kir-Abb: Nil: ENil: Maa [*-mor- "old, mature": LOAN (expected *-mɔrr-)]
Kir-Abb: Nil: ENil: BARI mɔr-ja "to add, bring together"
RUB: IK mor-et- "to sprout"

[stem plus NS *-uh n./adj. deriv. suff. (v. < presumed earlier adj./adv. as in root 144)]

[stem plus NS *s n./adj. suff..]

[stem plus Ik ven.]

149. *muɗ   "to spoil (intr.)"

CSud: MM LUGBARA àndrù "to start rotting"
SONGAY múrsù "to lose completely"
Kir-Abb: Nil: ENil: TESO -mʊdɪar, -mɔdɪar "to destroy, ruin, annihilate, wreck"
Kir-Abb: Nil: ENil: BARI muɗiŋ "uninhabited place"

[CSud *V- v. pref. plus stem]
[stem plus NS *θ intens.]
[stem plus Ateker *-i finite ext. plus Ateker *-ar- itive]
[stem plus NS *ŋ n. suff.]

150. *múh   "to strip, hull, husk ((by rubbing))"

Koman: UKUK mú' ís "to hull (by rubbing)"

Kir-Abb: GAAM muug "chaff"   [-g is Gaam pl. suff. (NS *k^h)]
Kir-Abb: proto-Daju *mu(a)- "to rub"   [stem (plus NS *-a dispunc.)]
Kir-Abb: Nil: ENil: TESO -mwat "to wipe away"   [stem plus NS *-a dispunc. plus NS *t^h cont.]

Kir innovation: addition of Nilo-Saharan *-a disjunctive extension to the root.

151. *muhaɲ (> *mwaɲ) "to rub off" [root 150 plus NS *ɲ extend.]
SONGAY mòn "to skin, flay, pluck (feathers), depiliate"
Kir-Abb: GAAM məɲ- "to anoint"   [semantics: to rub oil on]
Kir-Abb: C.Jebel: AKA mɔɔɲin- "to squeeze"   [stem plus NS *n dur.]
Kir-Abb: Nil: WNil: NAATH muany "to husk by rolling in the hand"

152. *múk "to become sour, spoil"
CSud: PCS *ngu "sour"
KUNAMA mutugu "to rot, decay"   [metathesis of *mugutu-, stem plus NS *t^h cont.]

SONGAY múgú "mettre à fermenter"
Kir-Abb: Nil: WNil: OCOLO muk "musty"
Kir-Abb: Nil: WNil: NAATH muɔk "part of fish that is bad"
Kir-Abb: Nil: ENil: MAASI -múk "to brew"

153. *mūŋg "to bend, become bent"
KUNAMA mugu- "to turn corner, intertwine, plait"
Sah: KANURI mùnòk "to dent, bend in"   [stem plus NS *w punc. (*-aw > *-o plus NS *k caus., added since *ŋg > n/_# in Kanuri]

Sah: KANURI mùŋgùnò "to shrivel up"   [stem plus NS *n dur. or *ɲ extend. ("shrivel") plus NS *w punc. ("shrivel up")]

Kir:Abb: Nil: ENil: TESO -muŋ "to nod"

154. *múr "to intend"
Koman: UDUK múr "to be about to (do something)"
KUNAMA -mumul-, -mumur- "to worry (tr.)"   [partially redup. stem]
SONGAY múréy "to think about"   [stem plus NS *'y ess.-act.]

155. *múːr OR *múːd "biting fly"
FOR muru "horsefly" (B)
Kir-Abb: GAAM muuɬ "mosquitoes"   [*murɬ, stem plus NS *ɬ n. suff.]
Kir-Abb: Nil: ENil: BARI kimurte "mosquito"   [NS *k^h n. pref. plus stem plus probably ENil *t n. sing. marker]

Rub: IK [kímúr "mosquito": probably LOAN from ENil (*ki- is typical Nil form of NS *k^h pref.; *ku- is typical Rub)]   [NS *k^h n. pref. plus stem]

Other possible reconstructions: *mūːr or *mūːd. Probable Kir-Abbaian semantic innovation: shift of meaning to mosquito.

156. *múːr "fur, hair of body"
Koman: UDUK àmùr "hair, feather, wool, fur"   [NS *a- attrib. pref. plus stem]

Maban: MABA kamur "beard"   [NS *k^h n. pref. plus stem]
Kir-Abb: proto-Daju *miR "vein, root"   [semantics: "hair" > "root, vein"; apparent dissim. *u > *i /[+labial]_r, but more examples are needed to establish this as a regular Daju shift]

KIr-Abb: Nil: PENil *-múrr- "vein"   [semantics as in Daju]
Kir-Abb: Nil: SNil: Kalenjin *mu:ʀ "skin, hide"   [semantics: "fur" > "hide"; proposed semantic influence from language (Koman?) that retained the old meaning]

Probable Kir semantic innovation: shared shift to "vein" in Daju and Eastern Nilotic.

157. *mùṣ / *mòṣ "to pick up (many things)"/"to pick up"
Koman: UDUK mùš "to pick up dirt or piles of things, to draw out water"
CSud: PCS *nzo "to gather"
SONGAY mùsèy "to massage, press in hands, knead, rub"   [stem plus NS *'y ess.-act.]
Kir-Abb: West Daju *mo(o)s- "to squeeze"
Kir-Abb: Nil: ENil: BARI mujud-dyö "to grasp in the air"   [stem plus NS *t^h cont.]
Kir-Abb: Nil: ENil: BARI [musuk "to cling, grasp," musuŋ-ga "to clench (fist)": LOAN (expected *muj-)]   [stem plus NS *k^h iter. (as dur.)]

For other examples of this kind of vowel alternance and its semantic concomitants, see note to root 126. Sahelian semantic innovation: Both alternants show a shift of meaning from gathering things to grasping a thing or things tightly in the hand.

158. *mwáːŋg "to hate, oppose, resist"
CSud: PCS *nga "to speak angrily, threaten"
SONGAY mòŋgò "to resist, refuse"
Astab: PNub *moːn- "to reject, not want, hate" (NOBIIN móon-)
Astab: Nub: DILING monj "to hate"
Kir-Abb: GAAM mùgùr "to hate; to be obstinate, stubborn"   [stem plus NS *r iter.]
Kir-Abb: GAAM mùùr- "to be angry"   [stem plus NS *r iter., as in previous form, but added since *g > GAAM Ø /_-#]
Kir-Abb: Nil: ENil: TESO mwaɲit "to despise, scorn, disobey"   [stem plus NS *t^h cont. (still productive as *-it- in Lotuko-Maa of ENil)]
Rub: IK móny- "to backbite"   [proposed derivation: *móʄ-ɲ, stem, with expected sound correspondences, plus NS *ɲ extend. > *móɲ-ɲ- > *móɲ-)]

159. *mweːɲ "to glow" [root 133 plus NS *ɲ extend.?]
CSud: PCS *mi or *mwi "to glow"
Sah: DAZA mini "yellow"
SONGAY moni "yellow" (P)   [stem plus NS *'y n./adj. deriv. suff.]
Astab: Taman: SUNGOR minyit "star"   [stem plus NS *'y n./adj. deriv. suff.]
    [stem plus NS *'y n./adj. deriv. suff. plus sing. in *t]
Kir-Abb: BERTHA (F) mòːsɔʔ, (M) mùndzú "star"   [*muN-su, stem plus *s n. suff. (> [z] /N_)]
Kir-Abb: DINIK midí "star"   [< *miNt-, stem plus NS *t^h n. suff.]

Kir-Abb: Surmic: S.Surmic *muɲi "star"

[proposed *muɲVŋ-, stem plus NS *ŋ n. suff., as in Datoga reflex, > *muŋ-]

Kir-Abb: Nil: Tato *miɛːŋ- "star" (Rottland 1982: Datoga *meːŋ-)

[*ɲ regularly > Datoga Ø /i_ɛ, hence < earlier *miɲɛːŋ, stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: SNil: PAKOT [muɲan "yellow": LOAN from Rub]

[stem plus NS *n modif. suff.]

Rub: Wn Rub *munyan "yellow"

[stem plus NS *n modif. suff.]

Saharo-Sahelian innovation: derivation of an adjective for "yellow" from the verb, probably by addition of the *'y adjective and noun deriving suffix overtly present in Daza and Songay shapes. Eastern Sahelian innovation: derivation of noun for "star" from the root. Surma-Nilotic innovation: addition of Nilo-Saharan *ŋ noun suffix to noun for "star."

**160. *ama, *ma	"the one (referred to)" (dem. pron.);**
"that, which, who" (rel. pron.)

Koman: UDUK màn- "one who..." (attributive or agent n. pref.) (sing. aman-, PL. iman-)

[stem plus probably normal epenthetic nasal of Uduk compound formations; pl.: substitution of NS *ih pl. for initial *a- of sing.]

Koman: UDUK mò(N)- << clitic of time, place of >>

[possibly *maw, stem plus NS *w n. suff.]

Koman: UDUK mún "there"

[stem plus unexplained vowel plus NS *n modif. suff. or *ne/*na dem. of location (root 255)]

Koman: GUMUZ mmama "they"

[probably from *amama, pre-proto-Gumuz pron.-initial *a- plus stem redup. (see Chap. 8)]

Koman: GULE mane "this"

[stem plus NS *ne dem. root (255) or NS *n n./adj. suff.]

CSud: PCS *ma "I"

[stem plus NS *ah 1st person stem (root 1583); parallel formation to PCS *-me "you (sing.)" (see also root 1601)]

CSud: PCS *ama "we"

[PCS *a- pron. pl. pref. plus PCS *ma "I"]

CSud: PCS *-me "you (sing.)"

[*m-ai, stem plus NS 2nd person sing. pron. (root 1601); formed on analogy to PCS *ma "I"]

CSud: PCS *ame "you pl."

[PCS *a pron. pl. pref. plus PCS *-me "you (sing.)"; see PCS *ama "we" for same structure]

KUNAMA ama "this one (pron.)"
KUNAMA ma "which, that" (relative pron.)
KUNAMA *-me << base of all plural pronouns >>

[stem plus old NS *-ih pl. (*-maih > *-me)]

Sah: KANURI -ma << agent, occupational suff. (one who does nor makes...) >>
Sah: ZAGHAWA man "affair, thing"

[stem plus NS *n n. suff.]

Maban *ama "I"

[stem with NS *ah 1st person sing. root (1583) attached to form canonical NS pron. shape VCV]

Maban: MABA m- << 1st person pl. marker of v. >>
Maban: MABA maŋ "we"

[reduced < Maba independent pronoun]

[< *ama-ŋ, stem plus -ŋ pl. suff of all Maba pl. pron.]

Maban: MASALIT mìi "we"

[< *ama-i, sing. 1st person pronoun a: in Maba plus NS *ih pl. marker]

Astab: NARA kam "something"

[NS *kʰ n. pref. plus stem]

Astab: Taman: TAMA maː "man"

[stem plus NS *-Vh n. suff.?]

Astab: Nub: DONGOLAWI -ma "that yonder"
Astab: Nub: DONGOLAWI man "that over there, that other"

[stem plus NS *n n./adj. suff.]

Kir-Abb: GAAM mə̀n "someone"
Kir-Abb: C.Jebel AKA, KELO maane "other"

[stem plus NS *n modif. suff.]

Kir-Abb: BERTHA má:bá "person"

[stem plus NS *ba dem. pron. (root 32)]

Kir-Abb: BERTHA mənáŋ "other"

[structure as in Gaam "someone" plus NS *ŋ n. suff.]

Kir-Abb: proto-Daju *ma- "he"

[for source, see Tama entry]

Kir-Abb: proto-Daju *ma-, *man- "this"

[structure as in Gule]

Kir-Abb: Daju: SHATT mV- << masc. 3rd person sing. v. marker >>
Kir-Abb: Nil: proto-Luo *man- "this"
Kir-Abb: Nil: WNil: OCOLO ma "which, that" (relative pron.)

[structure as in Gule]

Kir-Abb: Nil: PNil *m- << masculine marker >>

[relict occurrences: see Greenberg 1970: 113 and Bender 1989b; for source see Tama entry]

Eastern Sahelian innovation: The development of a meaning "male" or "man," apparently from this root can be seen in Tama noun and in the Daju and Nilotic masculine marking reflexes.

**161. *ám	"we (exclusive)"**

Koman: UDUK *am "we (exclusive)" (UDUK ám, ámān)

[2nd shape: stem plus NS *n n. suff.]

Koman: UDUK bam "our (exclusive)"

[Uduk poss. pref. *b- of all pl. poss. pron. plus stem]

KUNAMA ma-, -ma << 1st person pl. excl. markers of v. >>
Rub: NYANG'I mis "we (excl.)"

[see root 1122 for element in *s]

Rub: NYANG'I -mis << 1st person pl. excl. marker of v. >>

[see previous Nyang'i entry]

Rub: IK -m- IN -ima << 1st person pl. excl. marker of v. >>

[1st and 2nd person markers in Ik have standard format -iCa, in which only C varies with person]

**162. *ámā	"person"	[NS *a- n. deriv. pref. plus root 160]**

Sah: KANURI kâm, PL. âm "person"

[sing.: NS *kʰ n. particularizing pref. plus stem]

Sah: DAZA ama "person"
SONGAY mâ "name"

[stem plus NS *-ah n. deriv. suff. is required to explain tonal outcome]

Kir-Abb: NYIMANG amadiŋ, PL. ama "person"
Rub: IK ám (ámá-) "person"

This root appears to be a shared Saharo-Sahelian semantic inovation in the self-standing form of root 160, shifting it from its originally pronominal meaning, still attested in the Kunama reflex listed under that root, to the noun meaning "person, human being." This development is one of numerous instances of the derivation, at different times and in different Nilo-Saharan languages, of nouns for "person" from demonstrative or indefinite pronominal stems: see roots 50, 160 (Bertha entry), 235, 322, 408, 964, 1154, 1244, and 1369 for examples. The demonstrative uses of this

root in Saharo-Sahelian apparently were maintained by clitic forms and, in Eastern Sahelian in particular, by a morphologically extended shape *man, seen in several attestations under root 160.

163. *ómp "shell, husk"

Koman: KOMO om "egg"

Koman: UDUK à'ōm "egg"	[NS *a- attrib. pref. plus stem (with epenthetic glottal stop inserted)]
Koman: OPO [kumu "egg": LOAN from Burun (contains NS *kʰ pref. and PNil *N < *NC)]	[NS *kʰ n. pref. plus stem]
KUNAMA amboŋa "bark, rind, crust, callus, boil, blister"	[stem plus NS *ŋ n. suff.]
KUNAMA kumba, komba "chaff of sorghum"	[NS *kʰ n. pref. plus stem, probably with V lengthening (*koomb-) accounting for 1st V outcome]
Astab: Taman: MERARIT kwɔɔbɔ "egg"	[NS *kʰ n. pref. plus stem]
Astab: Nub: DONGOLAWI, NOBIIN kumbu "egg"	[NS *kʰ n. pref. plus stem]
Kir-Abb: Jebel [*ʊm- "egg" (AKA ʊmuuke, PL. ʊʊmui; MOLO ʊmko): probable LOAN from Koman (expected *kum-)]	
Kir-Abb: NYIMANG ámù "bark"	
Kir-Abb: Nil: WNil: BURUN kumu "egg"	[NS *kʰ n. pref. plus stem]

Eastern Sahelian morphological innovation: addition of NS *kʰ n. pref., apparently in the allomorph *kʰu-, to stem, yielding *kʰwomp with meaning "egg." Addition of the prefix *kʰ in second Kunama entry can be understood as a separate innovation.

164. *ɔm "to smell (tr.)"

CSud: PCS *mɔ "to sniff; nose"

KUNAMA amomota "conferva di acqua putrida"	[NS *a- attrib. pref. plus redup. stem plus NS *tʰ n. suff.]
Kir-Abb: C.Jebel: AKA umɔɔdi, MOLO muudi "face"; KELO muudi "nose"	[stem (plus NS *-uh n. deriv. suff.?) plus NSud *t̪ n. suff. (as sing.?)]
Kir-Abb: BERTHA àmʊŋ, pl. àmʊŋi "nose"	[stem (plus NS *-uh n. deriv. suff.?) plus NS *ŋ n. suff.]
Kir-Abb: NYIMANG òmùḍù "nose"	[stem (plus NS *-uh n. deriv. suff.?) plus NSud *t̪ n. suff.]
Kir-Abb: proto-Daju *moone "nose"	[stem (plus NS *-uh n. deriv. suff.?) plus NS *n n. suff.]
Kir-Abb: Surmic: DM: LARIM amu "to smell"	[stem plus NS *-uh ven.?]
Kir-Abb: PNil *um "nose" (PWNil *wum; PENil *kume)	[ENil: NS *kʰ n. pref. plus stem]
Kir-Abb: Nil: ENil: BARI [mɔ-ja "to smell (tr.)": LOAN from CSud (expected *ɔm)]	
Rub: IK ɔmɔɬ "dry nasal mucus"	[stem plus NS *l n. suff. (NS *l > IK /ɬ/]

Kir-Abbaian morphological and semantic innovation: derivation of root word for "nose" from the verb. A shape *ɔmuh, stem plus *-uh noun deriving suffix, would account for the vowel *-u- seen in most Kir-Abbaian shapes, and by regressive assimilation for the raising of the preceding stem vowel *ɔ to *u in proto-Nilotic. This noun is a diagnostic innovation of Kir-Abbaian. The noun meaning in Central Sudanic by its different morphology must be considered a separate independent innovation.

165. *ɔ́:m "to produce moisture, make flow"

Koman: UDUK ūm "to milk"

CSud: MM: LUGBARA mɔ "to pour into one's mouth"	
Sah: KANURI wúm " to water (of mouth)"	
FOR um- "to draw water"	
FOR umo "mist" (B)	[*w n. deriv. suff. or *-o (mass) pl.]
Kir-Abb: Nil: WNil: OCOLO wöm "to carry water on one's head"	

Sahelian semantic innovation: specialization of the meaning of the verb to the bringing of water for use by people. The For noun, from its meaning, can be argued to have been derived before this semantic shift took place.

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ

166. *ɗâk' OR *ɗāk' "to dig a well"

KUNAMA dak-, dik- "to dig (a well)"

KUNAMA adaka, adika "well"	[NS *a- attrib. pref. plus stem]
SONGAY dèy "well"	
Kir-Abb: Nil: WNil: OCOLO ɗago "hole in threshing floor to keep grain from scattering"	

167. *ɗàm "shell (of hard fruit, egg, etc.)"

Koman: UDUK ɗàmùn "round unripe fruit children play with"	[stem plus NS *n n. suff.]
Maban [*kadem- "egg" (MABA kademik, PL. kademi "egg": probable LOAN (expected *-jam-? See root 179 for proposed regular Maba reflex of PNS *ɗ)]	[NS *kʰ n. pref. plus stem; presumed fronting assim. *a > *e /#C_mi]
Kir-Abb: NYIMANG [dámì, DINIK dómì "egg": LOAN (expected NYIMANG *ɗàm-)]	
Kir-Abb: Nil: ENil: Ateker [*-dam "brain": loan < Rub]	[see Rub entry]
Rub: PRub *ɗàm "brain" (IK ɗam (damú-))	[stem plus NS *-uh n. suff.; semantics: "shell" > "skull" > "brain"]

The derivation of nouns for "egg" from nouns earlier meaning "shell" or the like is widespread and recurrent in Nilo-Saharan; see, for instance, root 71, among a number of other instances. The Maba and Nyimang forms likely reflect separate borrowings from unidentified source languages.

168. *ɗàs OR *ɗàz "to turn (intr.)"

Koman: UDUK ɗàs bwày "to get out of the way" (bwày "way")

CSud: MM: LUGBARA dza "to turn"

Other possible reconstructions: *ɗās, *ɗāz, *ɗà:s, *ɗà:z, *ɗā:s, or *ɗā:z.

169. *ɗè "to strip, lay bare"

Koman: UDUK ɗèyááɗè "clear, or place"	[redup. stem by normal Uduk pattern; -y- is an epenthetic insertion]
Sah: KANURI dê "empty; naked"	
Kir-Abb: Nil: ENil: MAASAI -de "to shell"	
Rub: IK ɗewɗéw "to be hollow, empty (trees, gourds)"	[stem plus NS *w punc. as intr., redup. as adj.> v.]

170. *ɗèːh "to speak"
Koman: GUMUZ de: "to say"
CSud: PCS *di "to speak loudly"
KUNAMA -d- "to say"
FOR ri- "to speak"
SONGAY dèedè "to announce, proclaim, declare" [redup. stem (as intens.?)]
SONGAY dèenè "tongue" [stem plus NS *n. n. suff.]
Kir-Abb: Nil: ENil: BARI ɗın-dya "to pronounce, [stem plus NS *n. dur.]
   call by name"
Rub: IK ıɗɛıɗ- "to report one detail after another, tell [*i- v. class pref. plus stem, redup. as
   out one by one"   iter.]
Rub: Wn Rub [*di "matter, news"; *dian "to speak": [stem plus NS *n dur. (as denom.?)]
   LOAN < CSud after NS *#CV# > Rub *#VC#]

171. *ɗèːh "to increase, expand, add onto"
Koman: UDUK ɗèɗèɗ "to swell, as of sore" [redup. stem plus NS *ɬ v. intr.]
Koman: Gumuz: KOKIT de?iːl [stem plus NS *l n./adj. suff.}
Koman: GUʃɛ -dE?En "big" [stem plus NS *n adj. suff.)
CSud: PCS *di "to add onto"
Sah: KANURI dî Ў "to mix"
Astab: Nub: DILING de "anschwellen"
Kir-Abb: Nil: WNil: OCOLO ɗɛy "to head out, of [stem plus NS *'y ess.-act.]
   grain"
Kir-Abb: Nil: WNil: OCOLO [ɗɛṭ "to blister": [redup. stem (see Uduk entry)]
   LOAN from Koman (see UDUK entry)]
Kir-Abb: Nil: ENil: TESO [-diat "to heap up", store": [stem plus NS *tʰ cont.]
   LOAN of root *-di- from CSud (NS *e: > PCS
   *i)]
Rub: IK ɗɛɗɛan- "to rush (of rain), to flare" [redup. stem as iter. plus NS *n dur.;
     semantics: to increase suddenly, of
     rain or fire]

172. *ɗèːyɛy OR *ɗèːʼyɛy "entirely"
Koman: UDUK *ɗèyéé "entirely, every bit"
Sah: KANURI *dìyé "surely, entirely, only"

173. *ɗéːɓ OR *ɗéɓ "to not see"
Koman: UDUK ɗáɓ 'ē "to blind" (ē "amid")
SONGAY dèdébé "to look for by groping" [partially redup. stem]
Kir-Abb: GAAM dəbər- "to not see well" [stem plus NS *r iter.]

174. *ɗīs OR *ɗīθ "to be dark, dim"
Koman: UDUK ɗısɗıs "black" [adj. by redup. stem]
KUNAMA diši- "to be imperceptible"
Sah: KANURI dəsdəs "ideophone of dark-colored, [redup. stem]
   brown (of cloth)"
Astab: Taman: TAMA dəsi: "day of 24 hours" [stem plus NS *'y n. deriv. suff.; se-
     mantics: < earlier sense "night"]
Astab: Nub: DONGOLAWI dɛssɛ "green; light blue; [stem plus NS *y n./adj. deriv. suff.
   ünripe, raw, uncooked"   (*-aɣ); semantics: "green" is com-
     monly included in the scope of the
     word for "black" in African langua-
     ges]

Kir-Abb: Nil: WNil: OCOLO ɗıṭ "to blur, be hazy"

175. *ɗód "to feel bad, hurt"
SONGAY dórú "to regret; to be painful, hurt" [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: NAATH ɗuor "sorry"
Rub: PRub *dod- "to hurt (intr.)" (IK dód- "to feel [regressive alveolar assim., *ɗod- >
   pain")   *dod- before PNS *ɗ > PRub *ɗ;
     mirror image shift apparently occurs
     for NS dental *ɬ in root 1345]

176. *ɗómp "to cut off"
CSud: ECS *du "to cut off"
KUNAMA dambili- "to cut off [ears of] sorghum" [stem plus NS *l iter.]
Sah: KANURI dóp "to leave wife, divorce" [semantics: "to cut" is a common African
     derivations of verbs for "to divorce"]
SONGAY dúmbú "to cut, cut off" [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: OCOLO ɗöm "to divide into
   two equal parts"

177. *ɗu OR *ɗuː "to leap, spring"
CSud: BALESE hítú "to jump, ford" {Csud *k iter. (< NS *kʰ iter.; *k >
     BALESE h) plus stem]
KUNAMA du- "to jump, ford"
Kir-Abb: Nil: WNil: OCOLO ɗuc "to run fast, jump [stem plus NS *t' iter. intens.]
   high"
Kir-Abb: Nil: ENil: MAASAI -dúmú "to jump" [stem plus NS *m iter. concis. plus NS
     *-uh ven.]
Rub: IK iɗotiɗót- "to jump on one leg, hop (e.g., [*i- v. class pref. plus *-ɗot-, stem plus
   from stone to stone)"   *tʰ cont., redup. as iter.; IK /o/ for
     expected *u remains to be explained]

178. *ɗū "to get, obtain"
Koman: UDUK ɗù "to keep"
CSud: ECS *du "to put together"
SONGAY dù "to gain, get"
Kir-Abb: PNil *ɗuṭ "to pull out" (WNil: NAATH [stem plus NS *θ intens.; Bari: plus
   duṭ; Nil: BARI dutun)   ENil *-u(n) ven.]
Rub: IK ıuɗ- or ıúɗ- "to accumulate, gather, heap,
   put together"
Rub: IK [ɗót- "to pluck, uproot": LOAN from [see PNil *ɗuṭ above]
   Nilotic (expected *ɗús-)]

179. *ɗúr / *ɗúrm "dark"/"darkness" [2nd stem: root plus NS *m n. suff.]
Koman: UDUK ɗùrùmíɗ "to darken, become dark" [2nd stem plus NS *ɬ v. intr. suff.]
KUNAMA dummu-, durmi- "to be dark" [back-formation of v. from 2nd stem]
Sah: KANURI dártə̀ "midnight" [stem plus NS *tʰ n. suff.]
Maban: MABA ajurko "night" [NS *a- n. deriv. pref. plus stem plus
     probably NS *k adj. suff. ("dark")]
Kir-Abb: Nil: PSNil *tuR "black"

180. *ɗùːr "to fall (of water), spill"
Koman: UDUK àɗùɗùrù' "waterfall" [NS *a- n. deriv. pref. plus partially re-
     dup. stem plus NS *-Vh n. suff.]

CSud: PCS *drue "to urinate"   [stem plus CSud *-V v. suff.]
CSud: PCS *kedrue "urine"   [NS *kʰ n. pref. plus CSud v. stem]
KUNAMA -dur- "to urinate"
Sah: KANURI dùr "to fall of rain"
Kir-Abb: Nil: WNil: NAATH ɗur "to splash"

The Central Sudanic and Kunama meaning shifts appear to be independent innovations in each— Central Sudanic via morphological alteration, but Kunama by simple meaning change alone.

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ

181. *ɗah "to hold in the mouth"

CSud: ECS *ɗa "to take into the mouth"
Sah: KANURI dô "meat, game"   [presumed original meaning "food" (cf. derivation of English "meat")]

Kir-Abb: proto-Daju *ɗe(y)- "to suckle"   [stem plus NS *'y ess.-acct.]
Kir-Abb: Surmic: DM *ɗa- "to eat"
Rub: IK daɗit- "to eat or drink anything"   [redup. stem as iter. plus NS *tʰ cont.]
Rub: IK ɗáɗít- "to eat mixture of fruits and vegetables"   [see previous entry; tonal shift remains to be explained]

It is necessary to reconstruct stem-final *h to account for the different vowel length outcomes in the Songay and Ocolo reflexes of its derived noun, root 182.

182. *ɗáhn "palate" [root 181 plus NS *n. suff.]

SONGAY dáanà "palate"
Kir-Abb: Nil: WNil: OCOLO dan "opening into the windpipe"
Kir-Abb: Nil: ENil: TESO e-dano "palate"

See notes to root 181 for reconstruction of medial *h.

183. *ɗà:p "to block, stop, prevent"

Koman: UDUK ɗāpʰ "to block road, river; to plug, stop, shut up hole"
Sah: KANURI dàp "to prevent, refuse"
SONGAY dáabù "to close, shut"   [stem plus NS *-uh ven.]

184. *ɗās "to spread (tr.)"

Koman: UDUK ɗās "to spread in the sun (as grain to dry)"
CSud: PCS *dza "to spread (tr.)"
SONGAY dásásá "to fly, dispersing, scattering out"   [stem partially redup. as iter.]
Kir-Abb: Nil: WNil: OCOLO dat "to pry or force open"

185. *ɗá:ʂ "to flap, fan, flutter"

Koman: UDUK ɗáš "to winnow"
SONGAY déesì "to fly, fly away"   [stem plus NS *-i itive]

186. *ɗéh "one (adj.)" [probably deictic root 189 plus *-eh n./adj. deriv. suff.]

Koman: UDUK ɗe' "one"

CSud: PCS *ɗe "one"
FOR d- << noun singular marker >>
FOR díík "one," PL. diŋa "some" (B)
Kir-Abb: Nil: ENil: BARI kaɗe' "alone"
Rub: Ik ɗie "like, as"

Rub: PRub [*ɛɗ "alone": LOAN, probably from CSud (expected *ɗeh)]

    [NS *kʰ n./adj. pref. plus stem]
    [stem plus NS *y modif. suff.; semantics: as if one and the same]

187. *ɗér OR *ɗēr "rat"

CSud: PCS *ɗrɛ "rat"
Dir-Abb: Nil: ENil: Maa [*-déro(ni) "rat": probable LOAN from Rub]
Rub: PRub *ɗer "rat" (IK ɗéro-)

    [misreconstructed as *dɛr in Ehret 1981]

188. *ɗɛpʰɛh "strip of skin"

SONGAY dèfè "vulva (labia minor)"
Kir-Abb: Nil: WNil: NAATH dɛp "rope"

Rub: IK ɗef "part of a skin" (ɗɛfé)

    [semantics: "strip of skin" > "thong" > "rope"]

189. *ɗí << deictic (?) root >>

Koman: UDUK áɗí "he, she, it"
Koman: UDUK àɗán "here"

Koman: GUMUZ aɗa "I"

CSud: PCS *ɗ- << interrogative pronoun stem >>
CSud: PCS *ɗi << demonstrative of reference >>
Kir-Abb: Daju: LAGAWA ɗiara "what?"

Rub: IK ɗa "this one"
Rub: IK ɗo "if, just, even, that"

    [NS *a n. deriv. pref. plus stem]
    [2nd stem in common VCV pron. shape plus NS *ne/*na dem. root (255)]
    [root with NS 1st person marking *a (< *ah, root 1583) formed to common VCV pattern of prons]

    [stem plus probably NS *r dem. root (1244)]
    [stem plus NS *-ah n. suff.?]
    [*ɗaw, previous Ik reflex plus NS *w n./adj. suff.]

190. *ɗì "young"

Koman: Gumuz: SESE ɗi'ya "baby"

CSud: PCS *ɗi "young"
KUNAMA adda "youth, lad"

Astab: NARA di "child, boy, son"
Kir-Abb: Nil: PENil *-dɪt "small, little, young"
Kir:Abb: Nil: ENil: TESO dio "a little of"
Rub: IK ɗiaak "baby"

    [presumed *ɗi'-, stem plus NS *-Vh n. deriv. suff. (Gumuz *-a n. ending)]

    [probable *ad-t-, NS *a- n. deriv. pref. plus stem remnant -d- plus NS *ʈ' or *tʰ n. suff.]

    [stem plus NS *ʈ' or *tʰ adj. suff.]
    [stem plus NS *w n. deriv. suff.]
    [stem plus NS *-Vh or *y n. suff. plus NS *k singul. suff. in its typical Rub shape]

A further possible PNS root *ɗih, "baby, small child," derived from this root by addition of NS *-Vh noun forming suffix, may be present in the Gumuz, Nara, and Rub reflexes.

191. *ɗì OR *ɗí "to seize"

Koman: UDUK ɗí' "thief"

CSud: PCS *ɗi OR *ɗi "to catch, seize"

FOR ri- "to snatch"

SONGAY dì "to seize

Astab: Nub: DILING dit-ēr "to press, squeeze"   [stem plus NS *tʰ cont. plus Nubian *r caus.]

[stem plus NS *-Vh n. deriv. suff.]

192. *ɗì:h "to heat"

CSud: PCS *ɗi OR *ɗi OR *ɗi "to cook"

KUNAMA di- "to heat milk; to sweat"

SONGAY dî "to burn (intr.)"

Rub: PRub *ɗiu "red" (IK ɗiu)   [stem plus NS *w n./adj. suff.]

Sahelian semantic innovation: A shift from "to heat" to "to burn (intr.)" apears in Songay and Rub.

193. *ɗìŋ "to be sticky, gluey (of sap, etc.)"

Koman: UDUK ɗìŋ̀ìtʰáɗīŋ̀ìtʰ "sticky, gluey"   [stem plus NS *tʰ n./adj. suff., redup.]

Koman: UDUK ɗíŋkílá "sealing wax for beehive entrance"   [stem plus probably NS *k adj. suff. ("sticky" plus UDUK -ila n. suff. (NS *l), i.e., "sticky stuff"]

SONGAY dìŋà "to caulk"   [stem plus NS *-a dispunc.]

194. *ɗì:r OR *ɗí:r "to stay"

Koman: UDUK ɗīr "to live, dwell"

CSud: PCS *dri OR *ɗri "to stay, remain"

Kir-Abb: Nil: ENil: BARI ɗir-ön "to sink, drown"   [stem plus Bari ext.; semantics: "stay" > "sit" > "lower oneself" > "sink (in water)"]

195. *ɗìṣ OR *ɗì:ṣ "to be close, near"

Koman: UDUK ɗīs "to be close, near"

CSud: PCS *ji "to be alike, be of a kind"

Other possible reconstructions: *ɗīṣ or *ɗī:ṣ.

196. *ɗō: "to move (tr.)"

Koman: UDUK ɗō "to bring (or take) several things"

Sah: KANURI dú "to drive, drive away"

SONGAY dóntò "to send someone"   [stem plus NS *ŋ punc. (?) plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI ɗot "to extract"   [stem plus NS *tʰ cont.]

197. *ɗoh "earth, soil"

Koman: GULE du "earth"

CSud: PCS *ɗo "soft earth"

KUNAMA ada, adda "plain, countryside, valley"   [NS *a- attrib. pref. plus stem]

FOR du "down, below" (B)

Astab: NARA do "land, earth"

Kir-Abb: Nil: ENil: TESO [a-dwát "earth (soil)": LOAN from Rub (shows underlying Rub sing. morphology)]

Rub: SOO ɗoat, PL. ɗo' "kind of clay"

198. *ɗòk' "to make wet, moisten"

KUNAMA daka- "to rinse; to oil"

FOR kùrgò "spittle"   [NS *kʰ n. pref. plus stem]

SONGAY dóỳ "to float"   [stem plus NS *'y ess.-act.]

Kir-Abb: Daju: SHATT ɗox "mud"

Rub: PRub *ɗok'- "to be wet"   [Heine 1967a conflates this root with the distinct Rub root *dok'- "mucus"; Heine 1999 notes the difference]

199. *ɗóŋ "to not move"

CSud: PCS *ɗo "to sleep"

KUNAMA daŋa- "to wait"

Sah: KANURI dəŋgás "ideophone of woman when seated"   [stem plus NS *s prog.]

SONGAY dódóŋgó "to sit in majestic manner"   [stem plus NS *k intens., partially re-dup.]

Maban: MABA -ndóŋ "to set, put, place"   [Maba n- caus. plus stem]

Kir-Abb: BERTHA ɗóŋóːš- "to sit"   [stem plus NS *s prog. (> Bertha /š/)]

Kir-Abb: NYIMANG, DINIK dɔɲ "to sit"   [/ɲ/ for expected *ŋ; probably < *doŋ-y-, stem plus NS *'y ess.-act.; low for expected high tone may also be explained by addition of this suff.]

Kir-Abb: NYIMANG dɔɲɛr "buttocks"   [stem plus NS *r n. suff.]

Kir-Abb: TEMEIN rɔɲin- "to sleep"   [stem plus NS *n dur.]

Kir-Abb: Nil: proto-Luo *doŋ "to remain"

Saharo-Sahelian semantic innovation: narrowing of meaning to a particular kind of non-move-ment, "to sit." Kir-Abbaian semantic innovation: shift from "to sit" to "to stay, remain," with the sense "to sit" separately recreated in Bertha and Nyimang by the adding of different extensions.

200. *ɗóŋkʰòl "to curve, bend, roll (tr.)"

Koman: UDUK ɗáŋkāl "to overturn on side; to roll something heavy like a rock"

Koman: UDUK ɗáŋkálíɗ, ɗáŋkálàɗ "to roll, of ball"   [stem plus NS *l̩ v. intr.]

Sah: KANURI dəŋgəlɔ̀s "role of grass supporting roof of round house"   [stem plus NS *s or *ṣ n. suff.]

Kir-Abb: Daju: SILA ɗokolde "elbow"   [stem plus NSud *tʰ n. suff. as sing.]

Kir-Abb: Nil: WNil: OCOLO dɔl "to bend, double, fold"   [regular PWNil velar deletion /#CV_Vl (see also roots 307 and 319, among others, for this shift)]

Kir-Abb: Nil: WNil: OCOLO dol "circular ring of grass used in roof of house"

Kir-Abb: Nil: WNil: OCOLO dul "to coil"

Kir-Abb: Nil: ENil: TESO [aɪ-dɔl "to coil, fold, loop" LOAN from PWNil (expected *dokol)]

Rub: IK ɗukúd "round"   [stem plus NS *d adj. suff. (ɗukuɬd > *ɗukud-)]

Apparent Saharo-Sahelian innovation: use of root to name a particular feature (roof ring) of the old Sudanic round, conical-roofed house.

201. *ɗòr "to hurt"

CSud: ECS *ɗra "to become ill"   [< earlier *ɗrɔa, stem plus CSud *-a n. suff., "illness"?]

Kir-Abb: GAAM dùr- "to harm"

202. *ɗúː OR *ɗūː   "to give off smoke"

KUNAMA duuda "smoke"   [Bender 1971; stem plus NSud *ʈ n.
                                              deriv. suff.]

Kir-Abb: BERTHA ɗuːθa "smoke"   [stem plus NS *tʰ n. suff.]

Rub: IK ɪɗúz- "to produce black smoke"   [< pre-Rub *iɗu'y, *i- v. class pref.
                                              plus stem plus NS *'y ess.-act.]

It is tempting to consider root 202 following a derivative of this root, but the final *kw of 202, which does not quite match up with any of the Nilo-Saharan verb extensions, cannot as yet be satisfactorily accounted for.

203. *ɗúkw   "to give off smoke, vapor, steam, etc."

Koman: UDUK mònɗùhùɗ "dustiness (or air), sand-   [Uduk mòn- "place or time of" plus
   storm, fogginess"   *ɗùkʰùɗ, stem plus NS *ʈ n. suff.,
                                                  added after *k > kʰ /_#]

Koman: GUMUZ *ɗuːkwa "smoke"
SONGAY dúgú "parfumer en brulant; encens"
Astab: Nub: DONGOLAWI dug "to become clouded,
   overcast"
Kir-Abb: GAAM duug "ashes"   [< *dukuk, stem plus NS *kʰ n. pl.
                                               (Gaam [g])]

Kir-Abb: Surmic: S.Surmic: ME'EN ɗuka "ashes"

Rub: IK ɗukúm- "to disintegrate as a result of over-   [stem plus NS *m iter. concis.;
   cooking"   semantics: to become ashes]

Eastern Sahelian semantic innovation: A shift to an underlying sense "to burn down to ashes" can be argued to link the Gaam, Surmic, and Rub meanings, but not the Astaboran reflex, making this a possible indicator of a closer relation between the Rub and Kir-Abbaian groups than of either with Astaboran. Possible Kir-Abbaian semantic innovation: since PNS *pud "ashes" is still preserved elsewhere in the Surmic group, it can be proposed that noun root seen in the Gaam and Me'en words originally had a distinct meaning, such as "hot ashes," or that the two reflexes were separate derivations of the word for "ash" in the two languages.

204. *ɗùm   "to take"

CSud: PCS *ɗu "to take"
Sah: KANURI dùt "to lead (someone)"   [stem plus NS *tʰ cont. (*dumt > *dunt
                                              > duːt; regular *nt > t /_#)]

SONGAY dùm "to escort, lead back, accompany"
Astab: Nub: NOBIIN dúmm- "to take, seize"   [underlying *dumN-, probably *dumŋ-,
                                               stem plus *ŋ punc., is required to
                                               explain tone shift]

Kir-Abb: NYIMANG dumud- "to pick up"   [stem plus NS *tʰ cont.]
Kir-Abb: Surmic: DM: MURLE ɗum "to take"
Kir-Abb: Nil: WNil: JYANG dʊm "to grasp, hold"
Kir-Abb: Nil: PENil *-dʊm- "to pick up"   [loan from Rub?]
Rub: PRub *ɗʊm "to pick up" (IK ɗʊm-)

Possible counter-indicator of Saharo-Sahelian branching: Saharan and Songay share a meaning shift to "take (person) somewhere." On the other hand, this may belong among the several instances noted in this dictionary of borrowings from a Songay-related language in Kanuri (see root 993 for an example).

205. *ɗūpʰún   "thigh"

Koman: UDUK àɗúpʰún "upper leg"   [NS *a- attrib. pref. plus stem]
CSud: PCS *ɗu "thigh"

Sah: KANURI dúnó "thigh"   [< earlier *[duwun]/*[duvun] < *dufun
                                               (regular Kanuri realization of medial
                                               NS *pʰ)]

206. *ɗwak'   "frog"

Koman: UDUK àɗwá' "kind of frog"
CSud: PCS *ɗɔ "frog"   [ND *a- attrib. pref. plus stem]
Kir-Abb: Nil: PENil *dɔk- "frog"

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ or *ɖ

207. *ɗúʈ OR *ɖúʈ OR *ɗútʰ OR *ɖútʰ   "big variety of calabash"

SONGAY dútú "neckless gourd with large opening"
Rub: IK ɗút "big gourd for carrying water"
                                               [original unpublished Heine data (1983)
                                               has high tone, marked here; Heine
                                               1999 leaves out high tone mark]

Other possible shapes: *ɗúʈʰ OR *ɖúʈʰ.

PROTO-NILO-SAHARAN STEM-INITIAL *d

208. *dáːy   "to take (out)"

CSud: ECS *dɛ "to take out, let out"
SONGAY déỳ "to take away"   [stem plus NS *-i itive]
Astab: Nub: DILING de "to pick up"
Kir-Abb: NYIMANG dau "to catch"   [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: NAATH dɛʈ "to carry"   [stem plus NS *θ intens.]
Kir-Abb: Nil: ENil: BARI ɗayad-du "to take away   [stem plus NS *tʰ cont.as pluract.]
   everything"

Eastern Sahelian semantic innovation: shift of sense of the root from the action of removal itself to removal that involves lifting or picking up.

209. *dàyāh   "right, correct"

CSud: ECS *dɛa "right, correct"
KUNAMA dea "truly, really"
Rub: PRub *day "good" (IK da, PL. dayá-ák)

210. *deh   "to look at carefully, inspect"

KUNAMA da- "to separate, choose out"
SONGAY dèedè "to measure, compare"   [redup. stem]
Maban: MABA -da- "to love, want, look for"   [< *de-a, stem plus NS *-a dispunc.?]
Astab: Nub: DILING de "to choose"
Kir-Abb: Nil: SNil: DATOGA da(h)- "to see"   [PSNil *e > DATOGA a]
Rub: NYANG'I ide "to see"   [*i- v. class pref. plus stem]
Rub: NYANG'I ideu "to know"   [*i- v. class pref. plus stem plus NS *w
                                               punc.]

Reconstruction of NS *d is required by derivative verb in root 211.

211. *den   "to watch"   [root 210 plus NS *n dur.]
SONGAY dèndèn " to learn, imitate"   [redup. stem]
Kir-Abb: GAAM dɛn- "to look at"
Kir-Abb: Surmic: MAJANG dɛːn- "to see"
Kir-Abb: Nil: proto-Luo *nɛn "to see"   [Luo nasal assim.: PNil *d > *n /#_VN, as in NS *tam (root 771)]

212. *déŋk   "to bind, fix in place"
Koman: UDUK dékʰ "to tie"
Koman: UDUK dékʰádèkʰ "stiff, thick (liquid)"   [adj. by redup. stem]
SONGAY déŋgélé "plaited straw"   [stem plus NS *l or *ḷ n. suff.]
SONGAY déŋgélé "to couple (dogs)"   [stem plus NS *l iter.]
Astab: Nub: DONGOLAWI dɛngɛ "to become solid, rigid"   [stem plus NS *y ess.-act. (*-ay > *-e)]
Kir-Abb: BERTHA (M) dìːɲí, (U) dìːŋɛ́ "rope"   [stem plus NS *y n. suff. (*i/*ɛ < *-ay]
Kir-Abb: Nil: ENil: MAASAI ꟾdɪŋá "to be crowded together"   [*i- v. class pref. plus stem plus ENil "neut.-pass"]
Rub: IK dek (deké-) "ceremony associated with marriage"   [stem plus NS *-Vh n. deriv. suff.; semantics: marriage joins two people]

213. *dɛwèh OR *dā̆wèh   "baboon"
Koman: UDUK àddàwà' "baboon or monkey"   [NS *a- n. deriv. pref. plus stem; gemination of *d not yet accounted for]
Kir-Abb: GAAM dāw̃ "baboon:
Rub: SOO doeak "baboon"   [stem plus NS *k sing. (Rub *-a(a)k)]

214. *dì or *dìː   "to stop (intr.)"
Koman: UDUK dî "to remain, be present"
CSud: ECS *di "to sit"
Astab: Nub: DILING di "to stand up"
Rub: IK dii(w), PL. diitin "elders' meeting place"   [probably *diːh, stem plus NS *-Vh n. deriv. suff.; semantics; place where elders sit to talk]

215. dìl   "to fill up"
Koman: UDUK dìl "to weigh down, as with stones, etc."
Astab: NARA dillo "enough, sufficiently much"   [stem plus NS *w n./adj. deriv. suff.]
Kir-Abb: DINIK dílꞁà "much, many" ∘   [stem plus NS *-ah n./adj. deriv. suff.]
Kir-Abb: Nil: WNil: NAATH dil "to stop up crevices, fill up"
Kir-Abb: Nil: ENil: TESO -dɪl "to abound"
Rub: IK kadiꞁ "flowers of maize and sorghum"   [NS *kʰ n. pref. plus stem; semantics: "abound" > "grow in size" > "sprout, bud," hence, n. "flower"]

Eastern Sahelian semantic innovation: A shift of meaning to "to abound in" can be seen to underlie the Nara and Dinik adjectives and the Rub noun and to be directly present in the Teso (Eastern Nilotic) reflex. Naath's (Western Nilotic) seeming preservation of the earlier sense is probably attributable to influences from the Koman group, which are quite common in Western Nilotic languages.

216. *diːꞁ   "insect, bug, worm"
CSud: PCS *dri "insect, bug, worm"

Kir-Abb: GAAM deꞎer "tick"   [< * diꞎer, stem plus NS *r n. suff. with regressive V assim., as also in parallel Gaam environment in root 515]
Kir-Abb: Nil: SNil: PAKOT tílíːs "tick (generic)"   [stem plus SNil *s n. suff.]
Rub: SOO dìl "tick"

Apparent Eastern Sahelian innovation: narrowing of application to "tick."

217. *dó OR *dō̆   "to be fat"
Koman: KWAMA daː "fat (n.)"   [probably < *do-a, stem plus NS *-ah deriv. suff.]
CSud: ECS *do "fat (n.)"
Rub: IK yód, eód- "to be full"   [Ik *e-, *ɛ- pref., < *i- v. class pref.? Semantics: "be fat" > "be swollen," hence "be full"]

The shared noun application in Kwama and Central Sudanic is likely due to separate innovations in each, since separations derivational processes appear to have been involved.

218. *dòl   "to look at"
KUNAMA dala- "to watch fixedly, to cherish"
Sah: KANURI dàlám "wish, interest, fancy"   [stem plus NS *m n. suff.]
Astab: Nub: DONGOLAWI dol "to wish, want, desire"
Astab: Nub: NOBIIN dòll- "to love"
Kir-Abb: GAAM dāl- "to cling to, be greedy, be miserly, not give, refuse to give, withhold"   [expected *dàl-, however]
Kir-Abb: Nil: PENil *-dol- "to look at" (BARI dɔ-'ya "to look for"; MAASAI -dôl "to see," -itodól "to show")   [regular Bari deletion of *l /_'yV ext..; Maasai 2nd entry: *i- v. class pref. plus ENil *t caus. (NS *ṭ) plus stem]
Rub: IK doꞎ- "to attempt, try"

The Eastern Nilotic version of this root alone attests a concrete and logically primary meaning for it, "to look at." The remainder of these attestations consistently imply a shared Northern Sudanic shift to the sense "to seek," especially "to seek after avidly." The most probable explanation of this singular result—seemingly in conflict with all the rest of the evidence, according to which Nilotic belongs integrally, not only in Northern Sudanic, but in the much narrower Eastern Sahelian subgroup along with Nubian, Gaam, and Rub—is that the Eastern Nilotic form is actually a loanword from a non-Northern Sudanic language, perhaps one of the numerous borrowings from Koman found in Nilotic languages. On this basis, the reconstructed meaning of the root has provisionally been given as "to look at," with the secondary meaning "to seek" hypothesized as a possible Northern Sudanic innovation.

219. *dól   "above"
CSud: PCS *adrɔ "sky" (ECS "Divinity")   [NS *a- n. deriv. pref. plus stem]
KUNAMA dallama "cloud"   [stem plus NS *m n. suff.]
Sah: KANURI dəlágà "rain"   [stem plus NS *kʰ n. pl.]

220. *dóːɲ   "to rise, become tall, grow (up)"
CSud: ECS *du "to sprout"
Sah: KANURI dúnò "strength"   [stem plus NS *w n. deriv. suff.]
FOR ruɲ- "to rear, raise (young)"
SONGAY dónnò "to stretch out in height (intr.) like an elastic band which when it relaxes recovers its original shape"   [*doɲ-n-, stem plus NS *n dur.]
Astab: Nub: DONGOLAWI doːɲ- "to rear, bring up"

Astab: Nub: NOBIIN dòonyín "grown-up"   [stem plus NS *n modif. suff.]
Kir-Abb: Nil: WNil: OCOLO doɲ "to recover, get
    well"
Kir-Abb: Nil: PENil *-dóɲo/ *-dóɡo "mountain"   [stem plus NS *-Vh n. deriv. suff.?]
    (Vossen 1982: *-doɡ-)

Apparent shared semantic innovation in For and Nubian: shift to transitive meaning of raising
young. This sharing may well reflect old areal influences, however, since early pre-Nubian ori-
gins trace back to the Darfur region where For has long been spoken (see Thelwall 1982).

221. *dúːl OR *dūːl   "strip, strand"

CSud: PCS *dru "strip, strand"
CSud: PCS *edrue "vein"   [CSud *V- pref. plus stem plus CSud
                                                            *-V n. suff.]
Sah: KANURI dúlò "thick rope for tethering animals   [stem plus NS *w n. deriv. suff.]
    to"
Kir-Abb: Nil: WNil: NAATH dul "long hair"

222. *dùɡg OR *dùɡk   "to be(come) warm"

CSud: ECS *du "to be(come) warm"
SONGAY dùɡgù "to be warm" (dùɡgò "warm")
Kir-Abb: Nil: WNil: OCOLO duɡ "to smoulder"

Other possible reconstructions: *dūɡg or *dūɡk.

223. *dwaːr   "to chase"

CSud: PCS *drɔ OR *ɗrɔ "to chase"
Maban: MABA -dru- "to send back; to chase, drive
    away"
Kir-Abb: Nil: proto-Luo *dwar "to hunt"
Kir-Abb: Nil: ENil: BARI [dwar "big hunt": LOAN
    from Luo (expected *ɗ)]
Rub: IK [itwar- "to chase away": LOAN (expected   [*i- v. class pref. plus stem; SNil source
    *dor-) from preSNil root lost in present-day SNil)]   because NS *d > *t only in SNil]

224. *dwèɡk'   "log"

Koman: UDUK dwáɡkál "big wood"   [stem plus NS *l n. suff.]
Sah: KANURI dágám "log"   [stem plus NS *m n. suff.]
FOR dergaɡ, PL. kergaɡa "branch"   [*d/k-erg-aɡ, For number prefixes plus
                                                            stem with regular shift of vowel po-
                                                            sition in this environment, plus NS
                                                            *ɡ n. suff.]
Kir-Abb: GAAM dëgam "club, large stick"   [stem plus NS *m n. suff.]
Kir-Abb: Daju: SILA dugula, dugulge "stick"   [stem plus NS *l n. suff.]
Kir-Abb: Nil: WNil: OCOLO dul "log"   [stem plus NS *l n. suff. (with regular
                                                            WNil velar C deletion /#CV_VC]

The extended shapes *dwéɡk'él and *dwéɡk'ém may also be old alternative forms of this root
since each is attested in distant subgroupings of the family. In fact, only For, among the languages
cited, has the root without one or the other of these two suffixations.

225. *dwèmp   "to mix"

Koman: UDUk dùmbùl "to be mixed up in speaking"   [stem plus NS *l iter., added since *mp
                                                            > m /_# in Uduk, after which regular
                                                            Uduk shift *m > mb /CV_Vl took
                                                            place]

Astab: Nub: DILING dwab "to stir porridge"
Rub: IK dub- "to mix, mold, knead; to mix plants for
    medicinal or religious purposes"

226. *dwɛ̄ːr   "to put together"

Koman: UDUK dwàr "to insert, put into, attach ax
    head to handle"
CSud: Lugbara drò "to heap up"
KUNAMA dora- "to heap up grain"
Sah: KANURI dór- "to gather up"
Kir-Abb: GAAM dùr- "to heap up"   [expected mid tone]
Rub: SOO ɪdʊrmɔθ "to gather"   [*i- v. class pref. plus stem plus Rub
                                                            *-imos- recipr.]

Probable Sudanic semantic innovation: shift from putting together of two things to the putting to-
gether of a collection of things. By merely repeating the action, a single putting together becomes
the gathering of numerous things together, the explicit meaning present in all but the Uduk reflex.
The Uduk meaning can be derived as easily from the proposed proto-meaning, also by a single
semantic shift, narrowing the meaning to a single kind of attachment, by insertion of one thing into
another.

227. *ɛ́yd OR *ɛ̄yd   "breast"

Astab: Nub: DONGOLAWI ɛrt- "breast"   [stem plus NS *tʰ n. suff.]
Kir-Abb: C.Jebel *eyr "milk" (AKA eeri, MOLO
    iiri, KELO iri, ii)
Kir-Abb: BERTHA ɪrr "milk, breast"
Kir-Abb: proto-Daju *-id- "breast"
Kir-Abb: Surmic: DM *ira' "milk"   [stem plus NS *-ah n. deriv. suff.]
Rub: PRub *id "breast; milk" (IK ído(e)-; pl.   [sing.: probably < stem plus NS *-o n.
    íditín)   pl. marker, originally a mass pl.
                                                            ("milk"); Carlin recorded SOO /id/
                                                            where the writer heard /id/]

Though restricted to Eastern Sahelian, this root needs inclusion here because it is a diagnostic in-
novation of the Eastern Sahelian group, displacing the PNS root for "breast" into a different
meaning slot (see root 1001).

PROTO-NILO-SAHARAN STEM-INITIAL *d or *ɗ

228. *dí OR *ɗí   "to look at"

CSud: ECS *di "to appear; to look for"
SONGAY dí "to see"
Kir-Abb: Nil: ENil: TESO -dɪ "to aim"

229. *dòk' OR *ɗôk'   "to be soft, slack, loose, easy, slow"

CSud: ECS *do "to be soft"
KUNAMA daku- "to go at a slow pace"
KUNAMA [dokko- "to slacken, loosen, lessen, slow
    down": LOAN (from Nara?)]
FOR duke "slow (of horse)" (B)   [stem plus NS *-eh n./adj. deriv. suff.;
                                                            adj. formed since *o > u /d_k-# in
                                                            For]

FOR dòkké "fine (material)" | [stem plus NS *-eh or *y n./adj. deriv. suff.; adj. formed before *o > u /d_k-# in For, or loanword?]

SONGAY dòon "to be light, gentle, easy" | [stem plus NS *n dur.]

SONGAY dògòn "to be light" | [stem plus NS *n dur., but with irregular preservation of NS *k' as /g/]

230. *dɔ́ŋ OR *ɗɔ́ŋ   "yard, enclosure of homestead"

Sah: KANURI dáŋgá "fence of grainstalks" | [stem plus NS *-Vh n. deriv. suff.]

FOR daraŋa "enclosure" (B) (d- is For n. sing. pref.) | [*d-aroŋa, NS *a- n. deriv. pref. plus stem, with medial vowel assim.]

Kir-Abb: Daju: NYALA daŋane, PL. daŋuge "granary" | [semantics: granary referred to here is a structure located within the enclosure of the homestead; hence meaning shift: "yard" > "structure located in and characteristic of the yard"]

Kir-Abb: Nil: ENil: MAASI ɛn-duŋórotɔ́ "house fence" | [stem plus NS *r n. suff. plus Maasai *t n. sing.]

231. *dúŋk'w OR *ɗúŋk'w   "short"

Koman: Gumuz: 'GOJJAM' duqua "short"

CSud: PCS *du "short"

Sah: KANURI dúgúgúr "very short" | [partially redup. stem plus NS *r adj. suff. added since *NC > C /_# in Kanuri; thus separate formation from that seen in root 232]

Kir-Abb: Nil: ENil: Maasi dukʊny "short" | [stem plus NS *ɲ n./adj. suff.]

It is tempting to view the proto-Rub root *uɗ "short" as an early borrowing of the central Sudanic reflex of this root. But the Rub term appears instead more probably to derive from a separate proto-Eastern Sudanic root *uɗ "short" seen also in Nubian DONGOLAWI urtina "short." TESO (Eastern Nilotic) -uriana, PL. uriaka "short," with /r/ instead of expected *d (*[ɗ]), in this case would be a loanword, probably from Surmic because *r is the regular reflex of PNS *ɗ in that group.

232. *dùŋk'ùr OR *ɗùŋk'ùr   "short"   [root 231 plus NS *r adj. suffix]

SONGAY dūŋgùrà "to be short" | [stem plus NS *-a dispunc.]

Kir-Abb: GAAM dùùr- "to be short"

Kir-Abb: BERTHA [(M) ɗùgùri, (F) ɗògòri "short": LOAN (expected *duk'ur-)]

Verb usage was presumably independently innovated by back-formation in Gaam and Songay.

PROTO-NILO-SAHARAN STEM-INITIAL *d or *ɗ or *ɗ

233. *dér OR *ɗér OR *ɗér   "to conceal oneself"

KUNAMA dara- "to defend oneself" (as with shield)

SONGAY déré "to be lost, lose one's way, disappear"

Kir-Abb: GAAM dər(d)- "to hide (tr.)" | [stem (plus NS *tʰ cont.)]

Kir-Abb: Nil: ENil: BARI [ɗɛlɛt "hiding place": LOAN (expected *ɗɛrɛt) | [stem plus ENil *-et deverb. suff.]

Kir-Abb: Nil: ENil: BARI [ɗɛ-'ya "to hide (tr.)": LOAN (expected *ɗɛr-), possibly from SESurmic (in which NS *r > *l)] | [underlying *ɗɛl-: regular Bari deletion of *l /_'yV ext.]

234. *dùzùh OR *ɗùzùh OR *ɗùzùh   "termite"

CSud: MM: LUGBARA odzúrúkó "termite" (root *-dzu-) | [CSud *V n. pref. plus CSud *-rV and *-ko n. suff.]

Sah: KANURI [zùzù "brown kind of termite": LOAN (expected *duzu), probably from redup. Csud shape of root)]

SONGAY dùsù "termite"

PROTO-NILO-SAHARAN STEM-INITIAL *nd

235. *nda / *ndi   "this one"/"that one close by"
[dem. pron. and interrog. base seen in roots 236, 238, 241, and 242]

Koman: KOMO da "this"

CSud: ECS *nda "he, she, it"

KUNAMA ada, ILIT kaada "person" | [NS *a- n. deriv. pref. plus stem; Ilit: NS *kʰ n. pref. plus Kunama shape]

KUNAMA data "thing" | [stem plus NS *tʰ n. suff.]

KUNAMA diat "now" | [stem plus NS *'y n./adj. suff. plus NS *tʰ modif. suff.]

Sah: KANURI -ndi << base element in pl. pron. >> | [stem plus NS *-ih pl. suff.?]

Sah: KANURI ndúsó "everyone" | [stem plus KANURI woso "every"]

FOR d- << verbal noun prefix >>

SONGAY din "that" (P) | [stem plus NS *n n./adj. suff. or possibly *ne/*na dem. root (256)]

Astab: NARA [da, PL. deta "person": LOAN from Kunama (expected *nda)]

Kir-Abb: BERTHA ndɛ "person" | [probable *nda-y, stem plus NS *y n. suff., with meaning shift as in Kunama and Nara forms; *nd < *d by Bertha rule 2, Commentary to Table 2.9]

Kir-Abb: DINIK ándà "one" | [NS *a- n./adj. pref plus stem]

Kir-Abb: Surmic: SESurmic: ME'EN edu "you (pl.)" | [root as in Rub marker, plus *u 2nd pl. marker (root 1403)]

Kir-Abb: Nil: ENil: MAASAI -id- "that (right there)"

Rub: PRub *-id- << 2nd person subj. marker of v. >> | [NS *i "you" (root 1600) plus stem]

Rub: NYANG'I dɛnɛ "here" | [stem plus NS *ne dem. root (256)]

Rub: IK dé, PL. dí "that (referred to earlier)" | [sing.: probably *dai, stem plus *-i sing. marker; pl.: stem with *-ih pl. substituted for stem *a; for same Ik number marking in dem., see root 964]

Two shapes of this root appear in the data, *nda and *ndi, the former associated in one clear case with near location (Komo "this") and the latter with more distant location in Sahelian instances ("that right there" as in Maasai and Songay), but near implication in its second Kunama entry ("now"). The meaning "that one close by" has been chosen as best accounting for the variety of outcomes of *ndi.

236. *nda   "what?" ("comment?")
Sah: KANURI ndâ, ndân "where?"

[2nd entry: stem plus probably NS *en/*ne "here"]

Astab: NARA nda "what?"
Astab: NARA ndo "how?"

[< *ndaw-, stem plus NS *w n./adj. suff.?]

Kir-Abb: GAAM dá "where?"

[possibly < *dai, stem plus suff. as in Maasai and Ik reflexes]

Kir-Abb: Nil: ENil: MAASAI kodee "where?"

[probably NS *kʰ n./adj. pref. plus stem plus NS *yí dem. (root 1468)]

Rub: IK ndaí "where?"

[probably stem plus suffixation as in Maasai form]

237. *ndà:ɗ   "to deceive, cheat"
CSud: MM: LUGBARA ndrákúndrákú "thievish, larcenous"

[stem plus NS *k adj. suff., redup.]

Sah: KANURI ndàl "to steal"
SONGAY dàrgà "to deceive, delude, joke"
Maban: MABA -ndan- "to dupe, deceive"

[stem plus NS *k intens.]
[NS *ɗ > pre-Maba *r /V_ > n /#NCV_]

238. *ndé   "which?"
[proposed underlying *nda-y-, NS dem. root 235 plus NS interrog. root 1467]
Koman: GULE eédè "what?"; èédé "who?"
KUNAMA [ende "that, which" (rel. pron.): LOAN form NS language in which *nd is preserved and *e > e (Nara?)]
SONGAY de "what?" (P)
Astab: Nub: Hill Nubian *de "what?"
Kir-Abb: BERTHA (M) ándé, (U) ndé "which"

[NS *a- n. deriv. pref. plus stem]

239. *ndèd   "to twist or tie together"
KUNAMA dada "necklace"
Sah: KANURI ndərà "to plait, braid"
Kir-Abb: Nil: WNil: OCOLO dɛr "to weave leather string"

[stem plus NS *-a dispunc.]

240. *ndi / *ndà / *ndáye   "also"/"and"/"yet, still"
CSud: PCS *nde, *ndi "and, then"
Sah: KANURI ndà "well, now"
Sah: KANURI indi "two"

[1st root shape *ndi nominalized by putting it into canonical pron. form VCV; see root 993 for parallel processing of numeral "five" in Kanuri and Songay]

SONGAY dèỳ "nonetheless, yet, but, still"
SONGAY ndâ "with"

[tonal pattern and preservation of nasal indicates an earlier pre-Songay shape *VndV (presumably *ándà)]

Astab: NARA ande "or"
Kir-Abb: GAAM di "also"
Kir-Abb: Nil: WNil: OCOLO de "and, but"
Kir-Abb: Nil: ENil: TESO da "also"
Rub: IK ndà "and, with, then"

Alternate shapes with initial *a-, *ándà and *ándáyè, are implied by the Songay, Nara, and Ik reflexes. An additional, extended shape *ndáye, as indicated by the Songay reflex for "yet, but, still," would also explain the final *e in the first Central Sudanic and the Nara and Ocolo shapes. The sources of the element *-ye and of the *-i in *ndi "also" remain to be discovered.

241. *ndi OR *ndi: "what?"
Koman: KOMO dini "what?"
Koman: KWAMA uddi "who?"

[stem plus NS *n n. suff.]
[assim. form of NS *o- n. deriv. pref. plus stem?]

Sah: DAZA ndi "what?"
Kir-Abb: Nil: WNil: OCOLO adi "what?"
Kir-Abb: Nil: ENil: TESO -di "how many?"

[NS *a- n. deriv. pref. plus stem]

The source of the vowel *i in place of *a attested in root 236 is not yet known. Conceivably the reconstruction here should be *ndih, in which *-ih represents the PNS *-ih noun deriving suffix, shifting *nda "comment?" (root 236) to the specifically pronomial meaning "what?"

242. *ndo: "who?"
[probable underlying *nda-wa, root 236 plus NS *wa 3rd person stem (root 1369)]
Sah: KANURI ndú "who"
Kir-Abb: BERTHA ndolo "who?" (M)

[stem plus NS *l n. suff. or *l dem. (root 1292)]

Kir-Abb: Daju: NYALA dua "what?"

[stem plus NS *-ah n. deriv. suff., or is the postulated underlying structure present on surface here?]

Kir-Abb: IK ńdo "who?"

[this shape implies underlying *ando, *a- pref. plus stem, or else *N-do, Ik *N- pron. element (NS *ŋga topic marker), plus stem, probably the latter]

243. *ndóp   "to bend around, fold around"
Sah: KANURI ndáp "to knot, tie"
Sah: KANURI kàndəvú "joint"

[NS *kʰ n. pref. plus stem plus NS *-uh n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO dop "to put arms around, hug, embrace"
Kir-Abb: Nil: ENil: BARI [döp "to protect (with fence), enclose (with thorns)": LOAN (expected *ɗob]
Rub: IK dúb- "to catch, touch completely"

The Bari borrowed shape requires original *p instead of *b, which the rest of the reflexes allow as an alternative possibility. Eastern Sahelian semantic innovation: the non-borrowed reflexes shift the application of the verb to folding the hands or arms around around something.

244. *ndóŋk OR *ndóŋk   "to roll (tr.)"
Sah: KANURI ndák, ndók "to spin in fingers" (H)
Kir-Abb: Nil: WNil: NAATH dɔŋ-...rɔ "to roll about" (rɔ REFL.)
Kir-Abb: Nil: ENil: BARI dʊdʊŋ-ga "to swagger (in walking)"

[partially redup. stem]

245. *ndó:r OR *ndó:r   "to call out loudly"
CSud: ECS *ɔndrɔ "to rumble"
Sah: KANURI ndór "to shout or cry very loudly"

[CSud *V- pref. plus stem]

Kir-Abb: Nil: ENil: TESO -dorian "to complain" | [stem plus Ateker *-i finite plus either ENil *-an incep., as known from Bari, or NS *n dur.]

246. *ndùkʰ "to join, become attached"
Koman: UDUK dùkʰūɓ "to gather, assemble (intr.)" | [stem plus fossil Uduk suff. in *b or *ɓ]
Sah: KANURI ndə̀gàp "to stick (intr.)" | [stem plus NS *p extend]
Sah: KANURI ndə̀gàndə̀gàp "to stick fast" | [preceding Kanuri extended stem with partial redup. as intens.]

Astab: Nub: DONGOLAWI dugal "lock" | [stem plus NS *l n. suff.]
Kir-Abb: Nil: ENil: TESO -dukokin "to marry" | [stem plus Ateker -Vkin benef.]

247. *ndúkʰ "to raise"
Koman: UDUK àdùhàl "heap of refuse" | [NS *a- n. deriv. pref. plus stem plus NS *l n. suff.]

CSud: ECS *ndu "lump"
KUNAMA dukaduka "gland" | [redup. stem; semantics: gland is observable because it is swollen or raises a lump under the skin]

Astab: Nub: NOBIIN dúkki "small hill, heap" | [stem plus NS *'y n. suff.]
Kir-Abb: Nil: ENil: PEN *-duk- "to build"
Kir-Abb: Nil: ENil: BARI ɗukukin "to raise, heave up" | [stem plus ENil benef.]

PROTO-NILO-SAHARAN STEM-INITIAL *n

248. *ná: "what, that"
CSud: ECS *na << relative pron. ("what, that") >>
KUNAMA na- "who, what?"
KUNAMA *-no << interrogative suffix >> | [stem plus NS *w suff. (*naw)]
Sah: ZAGHAWA na "what?"
FOR nàán "when?" | [stem plus NS *ne/*na dem. root (256)
SONGAY cin "what?" | [NS *kʰ n. pref. plus stem (*ki-n-)]
Astab: NARA na "who?"
Astab: Taman *na "who?" (MERARIT na; SUNGOR nare) | [Sungor reflex: stem plus NS *r n. suff. or *re dem. root (1244)]
Astab: Nub: DONGOLAWI niː, NOBIIN na, nàay "who?" | [stem plus NS *y n./adj. suff.]
Astab: Nub: DILING na "what?"
Kir-Abb: GAAM ná "which, who, that"
Kir-Abb: GAAM nái "which?" | [stem plus NS *y n./adj. suff.; see also SNil and Nubian entries]

Kir-Abb: BERTHA naːno "what?" | [stem plus NS *n n. suff.]
Kir-Abb: Surmic: SWSurmic *an- "who?" | [NS *a- n. deriv. pref. plus stem]
Kir-Abb: Nil: PSNil *ne "what?" | [probable *nai, stem plus NS *y n./adj. suff.), as also in Gaam and Nobiin entries]

Rub: PRub *na "who, what, that (relative clause marker)" (SOO na, nan, IK na)

Rub: Ik káni "because" | [root 964, *ka "with," plus 2nd Eastern Sahelian root shape *naːy]

Proposed Northern Sudanic innovation: addition to this pronominal root of an interrogative function, along with a retention of its uses as a relative pronoun (as preserved in first Gaam entry and in Soo). Eastern Sahelian morphological innovation: development of a second interrogative form of the root, *naːy, probably by suffixing NS *y noun/adjective suffix.

249. *ná OR *náh "to reach, catch up with"
CSud: PCS *na "to be caught"
KUNAMA nao- "to reach"
Sah: KANURI ná "to reach, attain, catch" | [stem plus NS *w punc.]

Other possible reconstructions: *nā, *nāh, *ná:, *ná:h, *nā:, or *nā:h.

250. *ná: OR *ná:h "to rise"
CSud: PCS *na "to rise, be upright"
KUNAMA nau- "to lift, transport"
Sah: KANURI nàná (H) "to emphasize" | [stem plus NS *w punc.]
Astab: Nub: DONGOLAWI nɛ:yy- "to swell" | [redup. stem]
Kir-Abb: BERTHA ná:d- "to spread" | [stem plus NS *'y ess.-act.]
Kir-Abb: NYIMANG na "to be" | [stem plus NS *tʰ cont.]
 | [semantics: "rise" > "stand" > "be" (as in, for instance, SPANISH estar)]
Kir-AAbb: Nil: WNil: NAATH nayɛ "to climb as vine" | [stem plus NS *'y ess.-act.]

Possible Eastern Sahelian morphological innovation: derivation of a second form of the root by addition of the *'y essive-active extension, attested in Dongolawi and Naath.

251. *nàkʰ "to reject"
CSud: PCS *na "to shun"
KUNAMA nakkara "rejection"
KUNAMA nakkaro- "to reject" | [stem plus NS *r n. suff.]
Sah: KANURI nàk "to fail, avert responsibility" | [v. < n.]

252. *nàk'w OR *nà:k'w "to suck"
SONGAY náan "to nurse, suckle"
Kir-Abb: Nil: PENil *nakw "to suck" (BARI nɔ̆k) | [stem plus *n dur.]
 | [proposed *akw > ŏk in Bari, > *ak in other ENil]
Rub: PRub *nak'w "to suck"
Rub: IK nak'áf "tongue" | [stem plus NS *pʰ extend. intens., i.e., "to lap," hence n. "tongue"]

253. *nām "to eat up"
CSud: PCS *na "to swallow"
Sah: KANURI nànd "to bite (insect, snake)"
SONGAY nàmà "to bite" | [stem plus NS *tʰ cont. (as intens.?)]
Kir-Abb: GAAM nām- "to eat, chew"
Kir-Abb: TEMEIN lam "to eat" | [nasal dissim.]

254. *này "to observe"
CSud: ECS *nɛ "to look"
Sah: KANURI nyèk "to watch over, tend" | [stem plus NS *kʰ iter.]
Sah: KANURI nỳ- "to herd, pasture" | [< *[nyè] (/ne/); semantics: to watch over the herd]

Kir-Abb: Nil: WNil: OCOLO nay "to show off, display"

[shift to caus. sense, from be acquainted with to make acquainted with]

Kir-Abb: Nil: SNil: Kalenjin *nai "to know"

Kir-Abb: Nil: SNil: Kalenjin *nɛːt "to teach"

[stem plus NSud *t̪ caus.]

Rub: IK na- "to get used to, accustom"

Probable Eastern Sahelian semantic innovation: The Nilotic and Rub reflexes can be argued to share an underlying shift of focus of action in the verb from the observing itself to the consequence of observing, namely, finding out or becoming acquainted with.

255. *nàyìs "to pay (extended) attention to"

[root 254 plus NS *s prog.]

CSud: PCS *nzɛ "to look at"

[shape requires pre-PCS *nɛš, with palatalization of NS *s /Vy_#]

SONGAY néesí "to measure (an amount of grain) with a small calabash, to weigh, to aim at"

[stem plus NS *-i itive]

Kir-Abb: GAAM ɲesən- "to describe; imitate"

[stem plus NS *n dur.]

Kir-Abb: Nil: WNil: OCOLO nɛt "to aim at"

Rub: IK nes- "to hear"

Rub: Ik nesíb- "to hear, understand"

[stem plus NS *p extend.]

256. *ne / *na "here"/"there"

Koman: UDUK ãné "here, take this"

[NS *a- n./adj. deriv. pref. plus stem]

CSud: PCS *ne "here"; *na "there"

KUNAMA -ena "this"

Sah: KANURI ányi / túnyi "these" / "those"

[1st form: NS *a pl. marker (?) plus stem plus probably NS *-ih pl. suff. (< earlier *-ne'y); 2nd form: Kanuri distance dem. (see entries in root 792) plus same elements]

Sah: Tubu: DAZA -ni << focative "also" (used with both of the pair of linked nouns) >>

Sah: Tubu: DAZA -na << focative suff. of n. >>

FOR in, PL. kin "this"

[here and in other For entries probably < *ney, stem plus NS *y n./adj. suff.]

FOR ini "here"

FOR ani "what's-his-name" (B)

FOR inenen "on this side of" (B)

SONGAY nè "here"

[NS *a- n. deriv. pref. plus stem]

Astab: Nub: NOBIIN en "this"

[redup. stem plus NS *ŋ n./adj. suff.]

Kir-Abb: GAAM -n << definite article ("the one mentioned") >>

Kir-Abb: GAAM -nɛ́, PL. nὲ "this"

Kir-Abb: NYIMANG ni "this"

Kir-Abb: West Daju *ana "they"

[*na stem plus *a pl. marker, or else *na restructured as canonical *VCV pron. shape]

Kir-Abb: PNil *en, *ni "this"

Kir-Abb: ENil: BARI nene' "other" (indef. pron.)

[redup. stem (plus NS *-Vh n. deriv. suff.?)]

Rub: PRub *ane, PL. *ani "this"

[NS *a- attrib. pref. (as pron. formative) plus stem]

Rub: IK nayé, nɛ́ɛ́ "here"

[*na plus probably NS *y- dem. ("this nearby") (root 1468)]

Sahelian innovation: presence of alternative shape *ni "this," probably with proposed *i nearness marker substituted for original stem vowel.

257. *nèː "to look at"

CSud: PCS *ni "to watch"

Sah: KANURI nini "to observe carefully"

[redup. stem, as intens. and iter.]

FOR neen- "to bewitch"

[stem plus NS *n dur.; semantics: "to continue seeing," hence "to see into the future, act as a seer" > "to divine, work magic, betwitch," etc.]

Astab: Nub: NOBIIN nèe- "to see"

Rub: IK en- "to see, find, understand"

If the proposed semantic history of the For reflex is correct, the innovation of the meaning "to see," directly attested for Eastern Sahelian, must be traced back to the Sahelian stage.

258. *nèh "to utter"

CSud: PCS *ne "to say"

KUNAMA ana "song"

[NS *a- n. pref. plus simple stem]

KUNAMA nini- "to hum, croon"

[probable *ne:y < *nehey, stem plus NS *'y ess.-act., redup.]

KUNAMA anina, anana "singer"

[NS *a- n. deriv. pref. plus previous entry]

Sah: KANURI nyìmé "conversation"

[stem plus NS *m iter. concis. with V lengthening (*neh-m > *neːm) plus NS *y n. suff.]

SONGAY nê "to say"

Maban: MABA -ní wá- "to count"

[stem plus NS *w punc. plus *-a dispunc.]

Astab: Nub: DONGOLAWI nɛd "tongue"

[stem plus NSud *t̪ n. suff.]

DONGOLAWI nɛd "tongue" is apparently NOT attributable to root 534 because the regular Dongolawi reflex of that root should come out *nadd-; but it can be very simply derived from the verb root here.

259. *nel "to perceive"

CSud: ECS *ndrɛ "to see"

Maban: MABA -nel- "to learn, hear" (Lukas: -nila-)

Astab: Taman *nyel- "to know" (SUNGOR nyel-, TAMA nyal-)

Astab: Nub: DONGOLAWI nal, NOBIIN nal "to see"

Kir-Abb: GAAM ɲɛl- "to know"

Kir-Abb: Nil: SNil: N.Kalenjin *nal "to know"

260. *nẽm OR *nẽm "to grasp, grip"

Koman: UDUK nyèm "clawingly" (of lion grabbing thing)

Maban: MABA nɛnnɛm- "to gather, pluck" (L)

[redup. stem as freq.]

Astab: NARA nem "to seize"

Kir-Abb: GAAM ɲəm- "to choose, want, like"

Kir-Abb: GAAM ɲɛmed-ə "to withdraw something offered"

[stem plus probably NS *tʰ cont.]

Kir-Abb: Daju: SILA nembast- "to milk"

[stem plus NS *s prog. plus NS *tʰ cont.; *N > Daju *NC /CV_VC]

Kir-Abb: Nil: SNil: Kalenjin *nam "to grip"

Kir-Abb: Nil: SNil: Kalenjin *nem "to lift up"

[proposed underlying stem plus NS *-i itive with fronting of vowel by umlaut effect]

261. *nɛh   "earth"

Koman: GUMUZ *neʔe- "earth" (KOKIT nʔea, GOMUZ (e)nea, SESE ndea)

[proposed *neʔay-, stem plus NS *y n. suff. with V deletion, > *nʔe-, or else stem with metathesis *neʔ- > *nʔe-]

CSud: PCS *nɛ "sand"

Sah: KANURI nà "place"

Sah: BERTI anna "sand"

[NS *a n. deriv. pref. plus stem]

Astab: Taman: TAMA [ana "clay, earth, country": probable LOAN < Saharan (Berti-Zaghawa branch: expected *anɛ)]

[NS *a- n. deriv pref. plus stem]

Kir-Abb: Nil: WNil: NAATH niɛt "earwax; dirt on body; rust"

[stem plus NS *tʰ n. suff.]

Morphological differences favor separate derivations of the meaning "sand" in Berti and Central Sudanic.

262. *nɛŋ, *anɛŋ   "woman"

CSud: WCSud *nɛ "woman"

KUNAMA anaŋa, eneŋa "mother"

[NS *a n. deriv. pref. plus stem]

Astab: NARA anɛn "woman"

[NS *a n. deriv. pref. plus stem]

Astab: PNub *eːn "woman"

[contraction and assim. of earlier *anɛŋ > *ɛnn > *eːn ?]

Kir-Abb: BERTHA (F) nìŋɛ́, (W) nɛŋɛ́ "woman"

[contraction of earlier *nɛŋa to *ŋa]

Kir-Abb: Surmic *ŋa- "woman"

Kir-Abb: Nil: WNil: proto-Burun *eŋ "woman"

[contraction and assim. of earlier *anɛŋ like that seen in Nubian?]

Kir-Abb: Nil: PENil *ɛna- << feminine marker >>

[contraction and assim. of earlier probable *enɛŋa, stem plus sing. suff. in *-a]

A possible Northern Sudanic innovation of an alternative shape of the root, *anɛŋ, adding the Nilo-Saharan *a- attributive noun prefix to the simple stem, is indicated here. A recurrent tendency toward regressive vowel assimilation, *anɛŋ to *ɛnɛŋ, is suggested by the Kunama, Nubian, and Nilotic reflexes.

263. *nɛŋ   "to bring"

CSud: PCS *nɛ "to carry"

Astab: NARA nin "to give" (Bender 1971: niː-)

Kir-Abb: GAAM ɲiŋɛn "generous"

[stem plus NS *n modif. suff.]

Kir-Abb: GAAM ɲəŋən- "to distribute"

[stem plus NS *n dur.]

Kir-Abbb: Nil: WNil: OCOLO nɛ̈ŋ "to give, pay wages"

Eastern Sahelian semantic innovation: shift in meaning from some more general kind of bringing to the presenting or giving out of something.

264. *nĭ   "to recline"

CSud: ECS *ni "to be weary"

KUNAMA niɲi-, niŋgi- "to lie down, stretch out"

[stem plus NS *ŋ punc. plus *k intens.]

FOR ni- "to sit"

Kir-Abb: NYIMANG, DINIK nì- "to kill" (sing. subj.)

[semantics: shift > tr., "make lie down," then > euphemism for "kill"]

Kir-Abb: Nil: PNil *nin "to lie down, stretch out" (PWNil *nin "to sleep"; SNil: Kalenjin *nin "to stretch"

[stem plus NS *n dur.]

Rub: IK ín- "to settle, live"

Probable Kir semantic innovation: A shift from "to recline" > "to fall asleep" would make sense of the Nyimang semantics (for which see comments to Nyimang entry) and of the Western Nilotic morphology (stem plus *n durative, changing "to fall asleep" to "to sleep").

265. *ni OR *nih OR *niː OR *niːh   "to coil"

CSud: MM *ini "snake"

[CS *V- pref. plus stem]

FOR ni- "to roll up"

266. *niː   "to drink up"

KUNAMA n- "to drink"

Sah: KANURI -ind- "to swallow" (yìndò, nzənda)

[stem plus NS *tʰ cont.]

Astab: Taman: TAMA nit- "to swallow"

[stem plus NS *tʰ cont.]

Astab: PNub *ni: "to drink" (NOBIIN ní-)

Kir-Abb: GAAM in- "to bite, sting"

Kanuri and Tama appear to share in a common semantic shift of probably the same morphology and may therefore attest a Saharo-Sahelian innovation of a particular extended form of the root. Alternatively, considering the proximity of Taman country to old Saharan-speaking territories, an ancient loanword or areal influence may be involved here.

267. *nikʰ OR *niːkʰ   "tooth"

Astab: NARA nihi, PL. nihit "tooth"

Kir-Abb: GAAM ɲiid, PL. ɲiiɫg "tooth"

[stem plus *ʈ n. suff. originally as ESah singul.]

Kir-Abb: C.Jebel: AKA ɲiice, PL. ɲiiði; MOLO ɲisu, PL. ɲidi; KELO ɲiidi "tooth"

[sing.: stem plus Kir-Abb *tʰ n. sing. marker known also from Daju (as *-ce); pl.: stem plus *tʰ n. pl.]

Kir-Abb: Surmic *nikiD "tooth"

[stem plus ESah *ʈ n. sing. suff. as singul. (*D represents an etymon with dental and glottal outcomes in different Surmic languages.)]

Other possible reconstructions: Stem with *ʈ' suffix may have been originally a plural, in which case the Nara and Central Jebel plurals would maintain this pattern and the shared Gaam and Surmic innovation would have been to treat this plural form as the new base and hence singular shape.

268. *nó: "to not move"

Koman: UDUK nón "to forbid, hinder, refuse, prevent"

[stem plus NS *ŋ punc. (with presumed assim. *ŋ > n /#nV_# as in root 269)]

CSud: PCS *nu "to not move"

Sah: KANURI nú "to die"

Astab: NARA not- "to sleep"

[stem plus NS *tʰ cont.; semantics: "to lie down" > extended action of sleeping]

Astab: Nub: NOBIIN nùww- "to rest, lay oneself down"

[stem plus NS *w punc.]

Kir-Abb: GAAM naag "sleep" (n.)

[stem plus NS suff. of shape *aw or *-ay, plus *k adj. suff.; n. < Gaam adj., which see]

Kir-Abb: GAAM ŋaaɋ "sleepy"   [stem as in previous entry plus NS *k adj. suff.]

Kir-Abb: Nil: WNil: OCOLO nway "to be drowsy, be sleepy"   [stem plus NS *'y ess.-act.]

Kir-Abb: Nil: SNil: Kalenjin *nu:c "to fall asleep"   [stem plus NS *'y ess.-act. (*no:ay > *nwe:c > *nu:c by regular *we: > *u: shift in SNil)]

Rub: SOO [ènúc "to sleep": LOAN from SNil]   [PRub *e- v. pref. (form of *i- v. class) plus stem shape of Kalenjin reflex]

Eastern Sahelian semantic innovation: application of root to a particular kind of not moving, namely "to lie down." This meaning shift may have been accompanied by the addition of the Nilo-Saharan *w punctive, overtly present in the Nobiin reflex. Possible Kir-Abbaian morphological innovation: addition of *y ess.-act., with probable semantic implication "to become sleepy, drowsy" for extended root. This innovation is evident on the surface in the Nilotic reflexes and, of the two possible morphological additions that would explain the Gaam shape, this affixation is the one that makes semantic sense in that language.

269. *nóŋ   "to pick up"

Koman: UDUK nón "to take from fire that which has been cooked"   [assim., *ŋ > *n /#nV_#, as in also in Uduk reflex in root 268]

CSud: PCS *no "to pick up (with hands)"

Kir-Abb: Nil: WNil: NAATH noŋ "to bring"

270. *nɔ:h   "to watch, listen, observe"

CSud: Noru-Madi *nɔ "to see"

Sah: KANURI no "to hear, learn, know"

Sah: ZAGHAWA nɔ́:-n- "to see"

Rub: SOO no (IMP. nɔ') "to wait"

Rub: IK nɔɔs- "to be clever" (nɔɔ́s "cleverness")   [stem plus NS *s prog. > stat. or else stem plus NS *s deverb. attrib. with v. by backformation < n.]

271. *nɔ̀:k OR *nɔ́:k   "to stick (to)"

KUNAMA [nekke- "to stick (to)": LOAN (expected *nɔg-)]

SONGAY nàagà "to stick (to)"

Kir-Abb: Nil: WNil: OCOLO nwak "to stick (to)"

272. *nɔ̀ŋ OR *nɔ́ŋ   "to loosen, become slack"

CSud: PCS *nɔ "to be flexible"

KUNAMA noŋo- "to be soft, flabby; to soften, be resilient"

SONGAY nàŋ "to let loose, leave, relinquish, loosen, relax, slacken, leave off, allow"

Maban: MABA noŋok "soft, weak, flabby, raw, uncooked"   [-k is Maba n./adj. sing. suff.]

Astab: Nub: DILING noŋ-ir "to break"   [stem plus Nubian caus. in *r]

Kir-Abb: Nil: ENil: TESO -nonok "soft, tender"   [stem plus NS *k adj. suff., added since KA *ŋk > *ŋ (hence, *noŋ-k- > Nil *nok), partially redup.]

273. *nóréh   "to drip from body"

Koman: UDUK nàràɗ "to flow (as of oil heavily applied on body)"   [stem plus NS *ḷ intr. suff.; probable V assim., either *noraɗ > *naraɗ, or earlier *nɔrɛɗ > *nɛrɛɗ and then > naraɗ by regular V shifts]

CSud: ECS *ndr(w)ɛ "tears"

CSud: PCS *ndrolo "wet, damp"   [stem plus CSud *-lV adj. suff. (NS *ḷ)]

Sah: KANURI kə̀nárá "giving milk (cow)"   [NS *kʰ n. pref. plus stem, with regressive V assim. (expected *kə̀nárá)]

Kir-Abb: GAAM nárə́- "to dribble, drool"

274. *nu:d   "to tread on"

CSud: PCS *ndu "track, footprint, sole"

Astab: Nub: DONGOLAWI nu:r "to thresh (by cattle treading out)"

Kir-Abb: Nil: WNil: OCOLO nur "to stir with feet"

275. *nún   "heat"

Sah: KANURI kánnú "fire"   NS *kʰ n. pref. plus stem plus NS *-Vh n. deriv. suff. (*kɔnùnû > kánnú)]

Sah: KANURI kánnúà "hot"   [NS *kʰ n. pref. plus stem plus NS *-ah n./adj. deriv. suff.]

SONGAY nùnèy "fire"   [stem plus NS *y n. suff.]

SONGAY kónní "heat, fever"   [NS *kʰ n. pref. plus stem]

SONGAY kónnù "to be hot"   [NS *kʰ n. pref. plus stem plus NS (-Vh n. deriv. pref., > n. as in Kanuri, converted to verb]

Kir-Abb: TEMEIN nunu "sun"   [stem plus NS *-Vh n. deriv. suff.]

Apparent shared morphologically innovated noun in Kanuri and Songay, *kɔnunuh, or else *nunuh in Kanuri, Songay, and Temein, meaning probably "heat," with both Kanuri and Songay independently adding the NS *kʰ noun prefix.

276. *nuŋ OR *nu:ŋ   "to descend, decline"

CSud: ECS *onu "to become night"   [SC *V- pref. plus stem; semantics: to set, of sun]

KUNAMA nuŋa-, nuŋu- "to withdraw, retreat"

Kir-Abb: Nil: WNil: OCOLO nuŋ "to decline, grow small, become less"

277. núr OR *nú:r   "to wither"

Koman: UDUK nùrùɗ "adj. descriptive of spoiling"   [stem plus NS *ḷ n./adj. suff.]

CSud: PCS *ndru "to shrivel"

Kir-Abb: Nil: WNil: NAATH nuor "to fall to pieces; tender"

278. *nwád   "to move with difficulty"

CSud: PCS *ndɔ "slow"

KUNAMA nuruta "slow"   [< earlier *noruta, stem plus NS *tʰ n./adj. suff.]

SONGAY nórú "to crawl along on the buttocks"   [stem plus NS *-uh ven.]

Astab: Nub: DONGOLAWI no:rɛn "slowly, gently"   [stem plus NS *n modifier suff.]

Kir-Abb: Nil: WNil: OCOLO nɔr "to stagger, walk
wobbly as when ill"

279. *ánā "we (inclusive)"

Koman: SWKoman *ana "we (incl.)" (UDUK ánā,
KOMO ana)

Koman: KOMO -an << 1st person pl. obj marker of
v. >>

Astab: Taman *-n- << 1st person sing. and pl.
marker of v. >>

Astab: PNub *-an "my, our" (KADARU ànní
"our"; etc.)

Kir-Abb: proto-Daju *kon- "we (incl.)"

      [see root 1599 for further discussion of
      this form]
      [see root 1599 for discussion]

Kir-ABb: PNil *wan "we"

      [*kʰ-wa-an, *kʰ- n. pref. plus *wan, for
      which see Nilotic entry]

Rub: SOO inia "we (incl.)"

      [NS *wah 1st person root (1374) plus
      stem]

Rub: SOO -n- IN -ine- << 1st person incl. pl. subj.
marker of v >>

      [Soo pl. pron. have regular shape *iCia
      in which C marks person]

Rub: IK -n- IN -isina << 1st person pl. incl.
marker >>

      [Soo pl. markers have regular shape
      *iCe in which C remnant of old stem
      marks person]

      [Ik 1st/2nd person markers have shape
      *-iCa; *isina compounds 2 suff.,
      *-ina (= SOO -ine) and *-isa, for
      which see root 1122]

280. *ïní "you (sing.)"

Koman: UDUK p-ìní "your (sing.)"

      [UDUK p- poss. pref. of sing. pron.
      plus stem]

CSud: PCS *ini "you (sing.)"
CSud: ECS *ani "you (pl,)"
KUNAMA n-, -n(u)- << 2nd person sing. marker of
v. >>

      [ECS *a- marker of pron. pl. plus stem]

Sah: KANURI nyí "you (sing.)
Saharan *n << 2nd person marker >>
SONGAY ní "you (sing.)
Astab: Taman: TAMA ino "your (sing.)"

      [stem plus *-u pron. sing. marker (affix
      67); see root 1154 for same suff.]

      [stem with gen.*ɔ: (which see in Chap-
      ter 7) substituted for final stem V]

Kir-Abb: C.Jebel: AKA ini, MOLO ɪn, KELO in "you
(sing.)"

Kir-Abb: C.Jebel: KELO -ín "you (obj. sing.)"
Kir-Abb: proto-Daju *ini(ŋga) "you (sing.)"

      [stem plus NS *ŋga dem. root (486)
      used as pron. base, originally of em-
      phatic prons., in Sahelian; Thelwall
      1981 has unsatisfactory reconstruc-
      tion *gi for this item]

Kir-Abb: Surmic *in- "you (sing.)"
Kir-Abb: Nil: PWNil *yɪn "you (sing.)"
Kir-Abb: Nil: PENil *ɪntá- "you (pl.)" (PLM
*ɪntáí [Maa *ɪntáí, ONGAMO ɛtáí, Lotuko
*ɪtáɪ]; Bari *tá)

      [*ɪn-ta-, stem plus *-ta n. pl. suff.;
      characteristic early Nil lack of NC
      yielded recurrent deletion of N; dele-
      tion or phonological reinterpretation
      of initial *ɪ also widely took place]

281. *únū "he / she / it"

Koman: Sn Koman *uni "they (UDUK únī)

      [< *uni, stem with old NS pl. *-ih in its
      reduced Koman shape /i/, substituted
      for final stem V]

KUNAMA unu "he, she, it"

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ

282. *ɗa "to walk, go"

Koman: GUMUZ *ɗ- "to go"
Sah: KANEMBU dō "foot"   [*ɗaw, stem plus NS *w n. suff.?]
Sah: ZAGHAWA dai "foot"   [stem plus NS *'y n. suff.]
Maban: MABA ja "footprint"
Maban: MABA jak, PL. jaɲi "foot/leg"
Maban: MIMI dya "thigh"
Astab: Nub: NOBIIN dáwwí "path"   [stem plus NS *w n. suff.]
Kir-Abb: Nil: WNil: OCOLO dato, PL. daat "hoof"   [stem plus NS *tʰ n. suff.]
Kir-Abb: Nil: ENil: BARI ɗam-tu "to wander"   [stem plus NS *m iter. concis.]
Kir-Abb: Nil: SNil: Kalenjin [*caːt "hindleg": LOAN   [stem plus NS *tʰ n. suff.]
from Rub (expected *tat]
Rub: SOO 'jat, PL. 'jatek "shin"   [stem plus NS *tʰ n. suff.]

Saharo-Sahelian semantic innovation: derivation of noun for "foot/leg" from the original verb
sense. Eastern Sahelian morphological and semantic innovation: derivation of secondary form of
the noun by addition of the Nilo-Saharan *tʰ noun suffix, with the meaning "animal's leg." The
existing Rub attestation, in Soo, of this form now means "shin," but the Kalenjin borrowing of the
word preserves what may have been the original Rub sense.

283. *ɗa "girl, daughter"

CSud: BALEDHA ða "daughter (of); niece, nephew;   [BALEHDHA ð < PCS *ɗ]
young female animal"
SONGAY zán "heifer"   [stem plus NS *n n. suff.]
Maban: MABA jok, PL. josi "goat"   [stem plus *w n. suff. (< *jaw-)]
Astab: NARA du, PL. duti "sheep"   [stem plus *w n. suff. (< *Daw-)]
Kir-Abb: Nil: WNil: JYANG dɔu, PL. dau "heifer"   [stem plus *w n. suff. (< *daw-)]
Kir-Abb: Nil: SNil: DATOGA dayɛːnda, PL. dayeːga   [stem plus NS *w and *y n. suff.
"kid, lamb"   (*day- < earlier PSNil *toy- <
      presumed *tawy-)]

Sahelian morphological cum semantic innovation: A shift of meaning from either young female in
general or else "girl" to "ewe-lamb/kid," accompanied by the addition of the Nilo-Saharan noun
suffix in *w, can be argued to link the various meanings evinced by the Sahelian reflexes. The
Songay reflex may be a separate derivation from this same root, by addition of the Nilo-Saharan
noun suffix in *n. Alternatively, it may be composed of *ɗa-w-n, with the structure seen else-
where in Sahelian tongues plus *n noun suffix (*ɗawn > *ɗɔn, with regular Songay change of
*ɗɔn to /zan/).

284. *ɗāːb "moisture, wetness"

Koman: UDUK jàbùt̪' "tears"   [stem plus NS *t̪' n. suff.]
KUNAMA daba "pool, marsh, spring"
Sah: KANURI dábdâb "soaked ground"   [redup. stem]
Kir-Abb: GAAM dāwd "muddy soil"   [stem plus NSud *t̪ n. suff.]

Kir-Abb: Nil: ENil: MAASAI ɛn-dapídápɔ̂ı "place where water collects on rock"   [redup. stem plus NS *y n. suff.; *b > p by Maasai implosive dissim.?]

Kir-Abb: Nil: SNil: DATOGA daba:sjé:ndà "puddle"   [stem plus SNil *-V:s n. suff. plus SNil *-ya:n n. suff. plus *-ta 2ndary suff.]

Northern Sudanic innovation: specialization of the root to denote an area of wet ground.

285. *ɗád   "to be active, lively, energetic"

Koman: UDUK jár . . . ē "to be busy" (ē "amid")

CSud: BALEDHA ðă "without order, pell-mell"   [underlying *Vða, CSud *V- pref. plus stem, accents for tonal outcome; BALEDHA ð < PCS *ɗ]

KUNAMA dada- "to be in a hurry"

FOR jara "swift"   [stem plus NS *-Vh n./adj. deriv. suff.]

Astab: Taman: TAMA ajalaney "fast"   [NS *a- n./adj. deriv. pref. plus stem plus NS *n and *y n./adj. suff.]

Kir-Abb: Nil: ENil: TESO [aı-jar "to be alive, conscious": LOAN (expected *dar), probably from Koman]

Possible Sahelian semantic innovation: A shift to the meaning "to be quick, fast" is attested in For and Tama. But lacking attestation outside of the Darfur region as yet, it is suspect as deriving from areal influences, which are clearly indicated in other instances involving For and Tama.

286. *ɗà:p OR *ɗà:ɓ OR *ɗà:ɓ   "to speak at length"

CSud: BALEDHA ðà "la langue parlée"   BALEDHA ð < PCS *ɗ]

KUNAMA dabu- "to speak long-windedly"

Sah: KANURI dávú "neck, tonsils"   [stem plus NS *-uh n. deriv. suff.; semantics: common African pattern of deriving "neck" < "to speak"]

SONGAY záabı "to give a response to an important question or respond to a letter"   [stem plus NS *-i itive]

287. *ɗà:r   "to rise, become tall or high"

CSud: PCS *ɗra "to grow, grow up"

KUNAMA darka "woman" (adult female)   [stem plus NS *kʰ iter., i.e., one who has fully grown up, converted to n.]

Sah: KANURI dàrgé "end; last"   [stem plus NS *k adj. suff. plus NS *y n./adj. deriv. suff.]

SONGAY záaríŋó "noon, midday"   [stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: WNil: NAATH dar "amidst, middle, zenith"; darɛ "top of head"

Saharo-Sahelian semantic innovation: conversion of the verb root to a noun for "high point, zenith," presumably by tonal shift, although additional derivational suffixes have been added since.

288. *ɗawk'   "to chew on"

KUNAMA dokona "food"   [stem plus NS *n. suff.]

Astab: Nub: DONGOLAWI do:g "to kiss"

Kir-Abb: BERTHA [dogoš- "to suck": LOAN (expected *ɗok'-) from language lacking implosive and voice/voiceless distinction /V_ (Gaam?)]   [stem plus NS *s prog.]

Kir-Abb: Surmic: DM: MURLE -duk "to lick"

Kir-Abb: Nil: WNil: OCOLO dwŏk "to chew cud"

Kir-Abb: Nil: ENil: MAASAI [a-ijóó "to swallow": LOAN < language in which *ɗ > *'j (as in Rub)]   [earlier Maasai *-joko or *-jogo with regular velar deletion /o_o#]

Rub: SOO 'jɔɠ, PL. 'joɠan "hunger"   [PRub *k' > Soo /ɠ/]

289. *ɗèh   "to be(come) large"

SONGAY zèy "to grow, sprout (plant)"   [stem plus NS *'y ess.-act.]

Astab: NARA je, PL. jeta "mountain"

Astab: Nub: NOBIIN díyyí "much"   [stm plus NS *'y adj. suff.]

Kir-Abb: NYIMANG dɾá "big"   [stem plus NS *-ah n./adj. deriv. suff.]

Kir-Abb: NYIMANG adiáŋ "fat"   [NS *a- n. deriv. pref. plus stem plus NS *ŋ n. suff.]

Rub: PRub *'je' "to be much" (IK ze- "to be big")

290. *ɗèhèn   "to become old"   [stem of root 289 plus NS *n dur.]

Sah: KANURI dìn "to become old"; dín "old (of things)"   [pre-Saharan *dèhèn > *de:n (with regular *e: > Kanuri /i/)]

SONGAY zéen "to be old"

Songay tone correspondence requires earlier presence of lost intervocalic NS *h.

291. *ɗém   "to beat (thing)"

Koman: UDUK jìm "to beat or hit, strike by punching; to pound earth on graves"

SONGAY zèm "blacksmith"

Kir-Abb: NYIMANG dèm "to break (stick)"

Kir-Abb: DAJU: SHATT ɗəmz- "to strike"   [stem plus NS *s prog. (> [z] /m_)]

Kir-Abb: Nil: WNil: OCOLO dyɛm "to thresh sorghum before it has dried"

Rub: IK zéb- "to hit; to throw"   [< PRub *'jeob < pre-Rub *ɗemp, stem plus NS *p extend.; fell together in Ik with reflex of root 1527, accounting for the meaning "throw"]

The addition of the *p extendative extension, seen in the Ik reflex, may go back to the proto-Eastern Sahelian language, since the sequence *mp# > *m# in Nyimang, Daju, and Nilotic.

292. *ɗé:r   "to cut off"

CSud: PCS *dri OR *ɗri "to cut off"

KUNAMA [dardara "strip"; dardaro- "to cut into strips": LOAN (expected *dirdir-)]   [redup. stem; borrowed from Saharo-Sahelian language before NS *e > Kunama /a/]

Sah: KANURI dír "to cut into strips"

SONGAY zéerí "to stripe, streak, make line"   [stem plus NS *'y ess.-act.?]

Kir-Abb: proto-Daju *ɗett- "to split"   [stem plus NS *tʰ cont. (pre-Daju *ɗert- > *ɗett-)]

Kir-Abb: Nil: WNil: OCOLO dyɛr "to stick spear into fish already speared by another"

Saharo-Sahelian innovation: narrowing of meaning to particular kind of cutting, to split, especially into strips; Songay has carried this shift a step further, its verb focussing on the resulting shapes ("to stripe," etc.) but no longer specifying cutting as the formative action. The more general sense of splitting is retained in the Kir reflexes (Daju and Ocolo).

293. *ɗè:s OR *ɗé:s   "to make a hole in"

Koman: UDUK jìs "hole"

CSud: PCS *ji "to dig (hole)"

Kir-Abb: GAAM ɖɛs- "to poke"
Kir-Abb: Nil: WNil: OCOLO dyɛ̈t "to throw spear"
Kir-Abb: Nil: ENil: TESO -det "to fish (with hook)"

Apparent Kir-Abbaian semantic sharing: narrowing of application of verb to actions that make a small hole.

294. *ɗɛ̀:ɖ "to weaken, waste away"
CSud: ECS *ɗɛ "to die"
KUNAMA dere- "to become thin, waste away, weaken"
Sah: KANURI déri "weak"   [stem plus NS *-ih n./adj. deriv. suff.]
Kir-Abb: GAAM ɖɛɛr- "to become thin"   [probably < *ɗəɫer-, stem plus NS *r modif. affix, with v. as back-derivation from an originally adj. form]

Kir-Abb: Nil: ENil: TESO -dediar "to lie flat"   [stem plus Ateker *-i finite (?) plus Ateker *-are itive; semantics: thin in vertical dimension, hence flat]

Rub: IK [deréd- "to be unable to stand properly":   [stem plus NS *d adj. suff., with v. <
LOAN (expected *'jɛd-)]   earlier adj.]

Apparent Kir-Abbaian semantic refocussing: toward thinness in dimensions for whatever reason, rather than only as a complement of becoming weak or wasting away.

295. *ɗɛ́n OR ɗɛ̄n "to shake, tremble (intr.)"
KUNAMA denena "disease, fever"   [partially redup. stem]
SONGAY zànà "to churn"
SONGAY zànzán "to shake, to enter into convul-   [redup. stem]
sions"
Kir-Abb: Nil: WNil: OCOLO dɛn "to shake, chill, shiver, chatter"

296. *ɗɛ̀:r "to become hot"
CSud: PCS *dre OR *ɗre "to be(come) hot"
SONGAY zárgá "bouillir en faisant du bruit, bouillir   [stem plus NS *k intens.]
de colère"
Kir-Abb: GAAM dərd- "to expose to fire, heat"   [stem plus NS *t̞ tr.]
Kir-Abb: Nil: WNil: OCOLO dɛr "hot"
Kir-Abb: Nil: ENil: BARI [dɛr- "to cook:" LOAN
probably from WNil (expected *ɗɛr-)]

297. *ɗɪ̄:b OR *ɗɪ̄:ɓ OR *ɗɪ̄:p "to be in disorder, act in disorderly fashion"
KUNAMA dibiri- "to be tangled (of hair)"   [stem plus probably NS *r modif. affix, with v. as back-formation from underlying adj.]

Sah: KANURI dɪ́vɪ̀ "bad"   [stem plus NS *ih n./adj. deriv. suff.]
SONGAY zɪ̀ibɪ̀ "to be dirty, impure, unclean"
Kir-Abb: GAAM [jɪwər "sterile"; jɪ̀wrɪ̀ "sterility":   [adj.: stem plus NS *r modif. affix; n.:
LOAN probably from Koman (expected *ɗɪw-)]   adj. plus NS *-ih n. deriv. suff.]
Rub: IK zɪ́b- "to walk around aimlessly"

298. *ɗīk / *ɗɛ́k "to tie, fasten" / "to tie knot"
CSud: ECS *ɗe OR *ɗe "to tie knot"
KUNAMA diɠina "marriage"; diɠin- "to marry"   [stem plus NS *n n. suff.; v. is back-formation < n.]

Sah: KANURI dəgəgə́r "woollen string on which   [partially redup. stem plus NS *r or *[
charms are threaded"   n. suff.]
Astab: Nub: DONGOLAWI diɠ "to be tied, bound"
Kir-Abb: GAAM ɖìì- "to fence in"   [stem plus probably NS *'y ess.-act.]
Kir-Abb: Nil: ENil: BARI ɗiki-jö "to carry on the   [semantics: items carried on back are
back"   normally strapped or tied there]
Rub: PRub *'jik "to tie, fasten" (IK zɪ́k'-)   [*k > IK k' /'jV_, where V =[+front];
                                                           see also root 309 for this shift

299. *ɗíŋgw "to be deaf"; *ɗíŋgwír "deaf"   [stem plus NS *r adj. suff.]
KUNAMA duɠura "deaf"
KUNAMA duɠuro- "to be deaf"   [v. < adj.]
Astab: Nub: DONGOLAWI duŋgur "blind"
Astab: Nub: NOBIIN dúŋgí "blind"
Kir-Abb: GAAM ɖirg- "to be deaf"   [metathesis of 2nd stem; v. < adj.]
Kir-Abb: C.Jebel: AKA digʸɛ "deaf"   [stem plus NS *y n./adj. suff.]
Kir-Abb: Nil: WNil: NAATH dir "deaf"   [regular WNil velar C > Ø /#CV_VC]

300. *ɗìŋkʰ "to be much, many"
Koman: GUMUZ ɗəga "much, many"
Kir-Abb: Nil: ENil: TESO -dikidik "to be frequent"   [redup. stem]
Rub: IK zuk "very"   [< pre-PRub *'jiuk]

301. *ɗɪŋkʰir "much"   [root 300 plus NS *r modif. affix]
KUNAMA dingira "thick, fat, swollen"
Astab: Nub: DONGOLAWI digri
Astab: Nub: NOBIIN digid "much, many"   [probably < *digirt-, stem plus NSud *t̞
                                                           n./adj. suff.]
Kir-Abb: Surmic: S.Surmic: MURLE [adɪgɪrr "big":   [NS *a- n./adj. deriv. pref. plus stem]
probable LOAN (expected *aɗigil)]

302. *ɗí:ɲ "to hit hard"
CSud: PCS *ɗi "to beat"
Sah: KANURI jɪ́nát "to lash, whip down (of rain)"   [stem plus NS *-a dispunc. plus NS *tʰ
                                                           cont.; NS ɗ > d elsewhere]
SONGAY zɪ́ "to kick"
Kir-Abb: Nil: WNil: OCOLO diny "to hit or strike hard"

303. *ɗínṣ "to fight with, struggle against (especially verbally)"
CSud: PCS *ji OR *je "to villify"
KUNAMA diši- "to resist"   [PNS *nṣ > Kunama /s/ > [š] /_i]
Kir-Abb: proto-Daju *ɗis- "to fight"
Kir-Abb: Nil: ENil: Ateker *-dɪc "to beat"
Rub: IK zíz- "to blame (somebody)"   [IK progressive voicing assim. as in root
                                                           306 (*'jinṣ- > *zis- > ziz-)]
Rub: IK [ɪɗɪts- "to beat severely": LOAN from   [*i- v. class pref. plus stem; low tone in
Ateker]   Ateker loan, together with high tone
                                                           in non-borrowed Ik reflex, implies a
                                                           mid-tone root]

Possible Kir semantic innovation: shift of focus of root from confrontational behavior in general to physical actions of fighting.

304. *ɗìːp OR * ɗìːp'   "to dig"

CSud: PCS *ɗi or ɗi "to dig"

Sah: KANURI dìvùdívú "end of hot season, in
 which preparations for farming are made"

[stem plus NS *-uh n. deriv. suff., re-
dup.]

Sah: KANURI jìwà "to weed, harrow" (H)

[stem plus NS *-a dispunc.; ND *ɗ >
KANURI j /#_iCa, > d elsewhere]

SONGAY [zífà "to cultivate with Songay pick":
 LOAN (expected *zíibà)]

[stem plus NS *-a dispunc.]

Kir-Abb: GAAM ɗiw- "to sow seeds"

Saharo-Sahelian semantic innovation: application of verb specifically to cultivation, probably ori-
ginally to the preparing of the field for sowing.

305. *ɗir OR *ɗiːr   "raised surface, crest, top"

CSud: ECS *dri OR *ɗri "forehead"

Astab: Nub: DONGOLAWI dirr- "bird's crest"

Kir-Abb: Daju: SHATT ɗirek "brain"

[stem plus probably NS *kʰ pl. marker
("brain" is a mass noun)]

Kir-Abb: Nil: WNil: OCOLO dir "platform (for
 fishing)"

Kir-Abb: Nil: ENil: BARI kiɗirö "ash-heap"

[NS *kʰ n. pref. plus stem]

306. *ɗís OR *ɗìs   "fat (adj.)"

Koman: UDUK [dìtʰádìtʰ "heavy": LOAN from
 WNil language]

[redup. stem]

Astab: Nub: DONGOLAWI dɛs "fat of milk, vegeta-
ble oil"

Kir-Abb: Nil: WNil: NAATH dit "big, large, great"

Rub: PRub *'jis "fat (adj.)" (IK zíz- "to be fat")

307. *ɗòːk   "to rise, go up"

CSud: ECS *ɗu "to carry off, carry away"

[shift to tr. sense; semantics: "to raise" >
"to pick up, carry"]

Sah: KANURI dàgàmdàgàm "high in rank (not a
 polite expression)"

[stem plus NS *m adj. affix, redup.]

FOR jùkkómé "dense"

[stem plus NS *m adj. affix; semantics:
"to rise" > "to thicken"]

Astab: Nub: NOBIIN dòog- "to ride"

Kir-Abb: GAAM dɔɔs- "to awake, get up" (*dɔgs-)

[stem plus NS *s prog.]

Kir-Abb: Daju: LIGURI ɗakaŋ "mountain"

[stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: ENil: TESO -dɔk "to climb"

Kir-Abb: Nil: ENil: BARI kɔɗukɪ', PL. kɔɗukɪlɛ
 "elevated country"

[NS *kʰ n. pref. plus stem plus NS *l n.
suff.]

308. *ɗòːl OR *ɗòːl̨   "to swing"

KUNAMA [doloko- "to seesaw, to sway": LOAN
 (expected *dull-)]

[stem plus NS *kʰ iter.]

Sah: KANURI dúlúdùlù "double chin"

[stem plus NS *-Vh n. deriv. suff., re-
dup.]

SONGAY zòolíntì "seesaw"

[stem plus NS *ŋ or *n and *tʰ n. suff.]

Kir-Abb: Nil: ENil: MAASAI ɔl-ɔɪdùlùl "elbow"

[stem partially redup. as iter., i.e., joint
at which arm swings]

309. *ɗóŋkʰòl OR *ɗóŋk'òl   "calf of leg"

Sah: KANURI dáŋgəl "calf of leg"

Kir-Abb: GAAM ɗɔgɔljɔ "ankle-bone"

[stem plus NS *ṣ n. attrib. suff.]

Kir-Abb: Nil: PNil: *dokol "lower leg" (WNil:
 OCOLO odöl tyɛl "big tendons of the back of the
 knee" (tyɛl "leg"); ENil: MAASAI ol-aidólòkì
 "ankle")

[NS *o- n. deriv. pref. plus stem; regu-
lar WNil velar deletion /#CV_Vl (see
also roots 224 and 319, among many
others, for this shift); Maasai: meta-
thesis]

310. *ɗòŋkʰw   "to stay in place, not move"

Koman: UDUK dùkʰáadùkʰ "lazy"

[redup. stem]

Sah: KANURI dàgá "to remain, live"

[stem plus NS *-a dispunc.]

FOR jùkkò "idle; stupid; stubborn"

[stem plus NS *w n./adj. deriv. suff.]

SONGAY zòŋkèy "to remain, be left apart"

[stem plus NS *'y ess.-act.]

Astab: Taman: TAMA juk- "to lay"

[semantics: tr. of "sit," i.e., "set, lay"]

Astab Taman: TAMA jukun "to sit"

[stem plus NS *n dur.]

Kir-Abb: Surmic: MAJANG dok- "to sit"

Rub: IK zek'w "to sit, stay, live somewhere"

[pre-PRub *'jeokw; for *k > IK k' shift,
see root 298]

Eastern Sahelian semantic innovation: narrowing of application of verb to a particular kind of stay-
ing, namely sitting.

311. *ɗòr   "to close"

CSud: PCS *drɔ OR *ɗro "to shut"

Sah: KANURI dəlì "open space outside settlement
 or compound"

[stem plus NS *-ih or *-eh n. suff.]

Astab: Nub: DILING dol "village"

Kir-Abb: GAAM ɗùr "public square"

Kir-Abb: NYIMANG d(o)r "shield"

[semantics: close > cover > shield (n.)]

Kir-Abb: NYIMANG doura "enclosed homestead"

[probable earlier *dorua, stem plus NS
*w n. suff. (see root 64 for another
case of this kind of Nyimang meta-
thesis]

Kir-Abb: Nil: WNil: OCOLO döro "wall"

Kir-Abb: Nil: ENil: BARI ɗor-o "to be entangled"

[stem plus Bari pass. (-V)]

Kir-Abb: Nil: ENil: BARI [dwör "stake fence":
 LOAN from Luo group (presence of diphthong;
 expected *ɗor-)]

Kir-Abb: Nil: SNil: Elgon-Mau *toy/*tuy (< *tɔR)
 "fence, enclosure"

Saharo-Sahelian innovation: derivation of a noun—probable original sense "enclosed open space
of village or homestead"—from the verb.

312. *ɗóːt OR *ɗóːtʰ   "to speak"

Koman: UDUK dótʰ "to ask question"

CSud: ECS *ɗu "to speak"

313. *ɗúːk'   to be stealthy, move about secretly"

CSud: PCS *ɗu OR *ɗu "to be strealthy"

Sah: KANURI dùwù "to sneak about, prowl" (H)

[stem plus NS *-uh ven.]

Astab: Nub: NOBIIN dúkk- "to steal"

[stem plus NS *k intens.?]

Kir-Abb: GAAM ɖuu- "to disappear, get lost, vanish" (*ɖug-)

Kir-Abb: C.Jebel *dug- "to lose" (AKA ɖug-, MOLO duw-)

Kir-Abb: BERTHA ɗúk'ù-θíŋ- "to hide, lose" [stem plus Bertha v. suff. -θiŋ, of uncertain meaning]

Kir-Abb: Nil: ENil: BARI ɗug-ga "to plunder"

Apparent Jebel semantic innovation: Gaam, Central Jebel, and Bertha share an underlying shift to the meaning "to become hidden, disappear." Eastern Sahelian semantic innovation: development of a transitive usage of the verb root with the meaning "to take by stealth." The development of an alternative, mutually exclusive direction of semantic innovation in the Jebel group provides a potential counter-indicator of the membership of Jebel in Kir-Abbaian. At odds with the rest of the evidence, it may reflect an older dual Eastern Sahelian usage of the unmodified verb root in the original intransitive as well as the innovated transitive senses. Or it might reflect as yet unverified semantic influences from a nearby non-Eastern Sudanic language, such as a Koman tongue.

314. *ɗwä:r "to restrain, not let do"

SONGAY zòorù "to rein in horse, restrain a child" [stem plus NS *-uh ven.]

Kir-Abb: NYIMANG dr "to refuse, dislike"

Kir-Abb: Nil: WNil: NAATH duar "to refuse what is offered"

Rub: PWRub *'jar "to refuse"

Eastern Sahelian semantic innovation: shift of meaning to "refuse," i.e., restrain oneself from doing or accepting.

315. *ɗwè:m OR *ɗwé:m "fat, thick"

Koman: UDUK dwàmádwàm "thick (of wood, rope)" [redup. stem]

CSud: BALEDHA ðù "graisse" [PCS *ɗ > BALEDHA ð]

Sah: KANURI də́msàsà "ideophone of large, fully branched tree" [stem plus probably NS *s prog. plus NS *-a dispunc. or *-ah n. deriv. pref., with redup.]

Sah: KANURI jə̀m "ideophone of something very big"

Kir-Abb: GAAM ɖimil- "to be fat, thick" [stem plus probably NS *l iter. as de-adj.]

Kir-Abb: Nil: ENil: BARI [dómà "big": LOAN (expected *ɗwöm or *ɗöm)]

316. *ɗwík^h "to prod, push (physically or verbally)"

CSud: ECS *ɗu "to tease, make fun (of)"

KUNAMA duka- "to bother, importune" [stem plus NS *-a dispunc.?]

FOR rig- "to push"

SONGAY zúkù "piquer devant soi, pistonner, cuisiner quelqu'un pour savoir ce qu'il a dans la tête"

Rub: IK ɪ'júk- "to push"

On the basis that a figurative usage should be secondary to a concrete meaning, Central Sudanic and Kunama would seem better candidates for possessors of the shared innovation. The Songay reflex, however, contains both poles of meaning, suggesting that a very old Nilo-Saharan metaphor is encapsulated in this verb.

317. *àɗáwlä "jackal"

Koman: UDUK àjálā "jackal"

Sah: KANURI dálá "jackal"

Kir-Abb: GAAM ɖə́wl "jackal"

318. *ɔɗomp "cultivated field"

Sah: KANURI dámbà "bed for sweet potatoes, small irrigation dike" [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: TEMEIN ɔjɔm, PL. kɔjɔm "(cultivated) field"

Kir-Abb: Nil: WNil: JYANG dom, PL. dum "(cultivated) field"

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ or *d or *ɗ (*D)

319. *ɗɔkwèl OR *dɔkwèl OR *ɗɔkwèl "monkey"

Sah: KANURI dágəl "ape"

Kir-Abb: Nil: PWNil *dol "Colobus monkey" [regular WNil medial deletion of velar /#CV_VC]

Kir-Abb: Nil: ENil: TESO e-dokolet, PL. i-dokolen "monkey"

Other possible reconstructions: *ɗɔk^hwèl, *dɔk^hwèl, or *ɗɔk^hwèl. IK (Rub group) kaɗokói "black-faced vervet monkey (Cercopithecus aethiops)" is surely from the same root, but its lack of the *l noun suffix attested on all the rest of the known reflexes in the Saharo-Sahelian languages makes its historical connections unclear. It may attest an earlier shape of the root, preserved in isolation in Rub. Alternatively, it may be a borrowing from a non-Saharo-Sahelian language, which split off the line of descent of the Saharo-Sahelian tongues before the *l noun suffix was added. If the Ik word is not a borrowing, but a regular retention, it would imply an original root *ɗɔkw.

320. *ɗur OR *dur OR *ɗur "morning"

CSud: MM: LUGBARA dru "tomorrow"

Kir-Abb: Nil: WNil: NAATH du(r)dur "early morning, dawn" [redup. stem]

Other possible pronunciations: *ɗu:r, *du:r, or *ɗu:r.

321. *ɗu:r OR *du:r OR *ɗu:r "brother"

CSud: ECS *dru OR *ɗru "brother"

KUNAMA adura "sister-in-law (subject to the levirate)" [NS *a- attrib. n. pref. plus stem; semantics: person who is associated with one's brother]

Sah: KANURI dûr "kindred"

Kir-Abb: Nil: WNil: NAATH duar "brother" (when speaking to younger person)

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ

322. *ɗ- (*ɗä) "there"

Koman: UDUK jàmú' "the other" [stem plus NS *am "this one" (root 160) plus NS *-uh n./adj. deriv. suff.]

Koman: UDUK àjá "who (sing.)" [NS *a- n. deriv. pref. plus stem]

Koman: UDUK jàná "which (sing.)"   [stem plus NS *n n. suff.]

Koman: UDUK jáátʰtʰēē "that one"   [stem plus other dem. elements (see root 792 for discussion)]

Koman: UDUK jántān "that one"   [stem plus UDUK tʰāān "that" (root 792)]

CSud: PCS *ɖ- << demonstrative stem >> (*ɖa "there")

FOR j- << verbal noun prefix >>

FOR ajiŋa "things"   [NS *a- n. deriv. pref. plus stem plus FOR -ŋa pl. suff. (NS *ŋ)]

FOR jí "you (sing. subj.)"; jì "you (sing. obj.)"   [stem plus NS *i 2nd person pron. (root 1600)]

SONGAY zâ "as soon as, after"   [*zah, stem plus NS *-Vh suff.]

SONGAY zàmá "because, as"   [stem plus NS *ma interrog., root 98)]

Kir-Abb: GAAM ɖāān "other, different, else"   [stem plus NS *n modif. suff.]

Kir-Abb: GAAM ɖaag "two"   [pl. of GAAM "other" (ɖāān): stem plus NS *kᵏ pl. marker]

Kir-Abb: NYIMANG ɖe "that"   [*ɖa-y, stem plus NS *y n./adj. suff.?]

Kir-Abb: Daju: SILA ja "what?"

Kir-Abb: PNil *ji "person" (PWNil *ji; PSNil *ci)

Kir-Abb: Nil: WNil: OCOLO jäm "things, property, belongings"   [stem plus NS *m n. suff.]

Kir-Abb: Nil: ENil: BARI da "what?"   [PNil *j > BARI d is regular sound shift, as also in next two entries]

Kir-Abb: Nil: ENil: BARI daŋ "time (as repetitious)"   [stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: ENil: BARI dɔ́ "you (sing.)"   [*dau, stem plus NS *u 2nd person element (root 1403)]

Rub: SOO ijan "here"   [stem *ji > PRub *ij, plus NS *n modif. suff. or else form of NS dem. in *n (root 255)]

Rub: IK 'ja "just, then"

Apparent Kir innovation: A use of the root in the shape *ɖa as an interrogative ("what?") appears both in Daju and in Bari of Nilotic. The pronominal meanings can be argued to have been derivationally separate developments in For and in Kir-Abbaian. The Uduk pronoun outcomes similarly were generated by separate morphological operations in that language. A shape *ɖi appears just in Rub, where it has a nearness implication, and in the proto-Nilotic root for "person."

323. *ɖá:ɓ   "to rise"

Koman: UDUK jáɓàjàɓà' "excessively (of fish biting, one after another, when fishing)"   [modif. by redup. stem plus NS *-Vh n./adj. deriv. suff.; semantics: rise > increase in number or quantity]

KUNAMA šabo- "to improve in health"

KUNAMA šabbana "improvement"   [stem plus NS *n n. suff.]

FOR jaab- "to climb"

Kir-Abb: GAAM ɖɔ́w- "to heap up"   [semantics: intr. > tr., i.e., to raise (in form of a heap)]

Kir-Abb: Nil: WNil: OCOLO jäp "to stir (food)"   [semantics: to add and mix together (ingredients)]

Kir-Abbaian three-step semantic shift: first from intransitive to transitive application of the verb ("rise" > "raise"); then from raising (as an upward movement) to raising as an increasing of quantity; and finally to actions that serve to increase quantity, namely the putting of things together (hence, Gaam "to heap up" and Ocolo "to stir (food)").

324. *ɖà:k'   "to fasten, make fast"

CSud: PCS *ɖa "to tie"

Sah: KANURI zàk "to close, shut"

SONGAY zèy "to steal"

Astab: Nub: DONGOLAWI jakk- "to press, press down, compress; to massage"   [gemin. as iter.]

Sahelian semantic innovation: The Songay and Dongolawi meanings imply an intermediate shift to the sense of fastening the hands around something.

325. *ɖà:n OR *ɖā:n   "to lie (down)"

Koman: UDUK jàn "to dream"

CSud: PCS *ɖa "to lie (down)"

Sah: KANURI zát "ideophone of lying down flat, close to ground"   [stem plus NS *tʰ cont.]

FOR jaan- "to wait"

Kir-Abb: Nil: WNil: NAATH jany "to prolong, dally, delay"   [progressive palatal assim., *n > *ɲ /#jV_#, or stem plus NS *ɲ extend.]

Sahelian semantic innovation: shift from "to lie" to "to tarry" (cf. English "lie around" for a similar extension of meaning).

326. *ɖáŋ OR *ɖà:ŋ   "to sway, swing"

Koman: UDUK jàŋájàŋ "swinging motion"   [redup. stem as iter.]

Koman: UDUK jàŋgáljàŋgál "to go swinging body from side to side"   [stem plus NS *l iter., redup. as iter.]

SONGAY zàŋkàm "to strut"   [stem plus NS *kʰ iter. plus NS *m iter. concis.]

Kir-Abb: Nil: WNil: OCOLO jäk "to jerk"   [Ocolo V implies PNil *ja:k < stem plus NS *kʰ iter. (pre-Kir-Abb. *Vŋkʰ > PNil *V:k)]

Kir-Abb: Nil: WNil: NAATH jɑk "to shake, churn"   [structure as in Ocolo reflex]

An apparent shared Sahelian morphological innovation appears in the Songay and Nilotic reflexes: addition of the *kʰ iterative extension.

327. *ɖé   "to swear"

Koman: UDUK jéé "to forbid in sense of cursing"   [probably *jey, stem plus NS *'y ess.-act.]

SONGAY zè "to swear oath"

Astab: Nub: DONGOLAWI jɛd "to swear oath"   [stem plus NS *tʰ cont.]

328. *ɖèɓ OR *ɖèɓ OR *ɖèp OR *ɖèp'   "to carry, convey"

Sah: KANURI zàvà "to send" (H)   [stem plus NS *-a dispunc.]

SONGAY zébén "to distribute"   [stem plus NS *n dur. as plurac.]

Kir-Abb: GAAM ɖɛb "clasping (e.g., between hands, under arm)"

Kir-Abb: Nil: SNil: NANDI ip-u "to bring, fetch"   [stem plus NS *-uh ven.]

Rub: IK ɨ́dɛp- "to pick up one by one": LOAN (expected *ɨdzeb-) from uncertain source]   [*i- v. class pref. plus stem]

329. *ɖépʰ   "to chop"

Koman: UDUK jépʰ "to chop"

CSud: ECS *ɖe "to split, chop up"

SONGAY zéfè "to strike with sword"

Kir-Abb: GAAM dəws- "to break to pieces, crush" [stem plus NS *θ intens.]
Kir-Abb: Nil: WNil: NAATH jop "to chop"
Kir-Abb: Nil: WNil: NAATH jup "ax"
Kir-Abb: Nil: ENil: TESO -jɛp "to cut down, chop"
Kir-Abb: Nil: ENil: TESO [a-ɛp "ax": LOAN from
    SNil language? (see Nandi "to chop")]
Kir-Abb: Nil: SNil: NANDI ep "to chop"
Rub: PRub *jiber "ax" (IK dzibér, PL. dzíber-ik;   [stem plus NS *r n. suff.]
    SOO ibé, PL. ibrán)

330. *dèr   "to crumble, break in pieces (tr.)"
Sah: KANURI zərən "to unravel, undo"   [stem plus NS *n dur.]
Sah: KANURI zázər "to sprinkle (water), strew   [partially redup. stem as iter.]
    (earth)"
Kir-Abb: GAAM dɛrma "crumb"   [stem plus NS *m n. suff.]
Rub: IK dzɛr- "to break to pieces, tear up"

331. *dɛɭ OR *dɛɖ   "to be blind"
Koman: UDUK jāɗà' "blind"   [stem plus NS *-Vh n./adj. deriv. suff.,
                                 added since Koman *ɖ > UDUK ɗ
                                 /_#]
Kir-Abb: GAAM dəɬəma "blind"   [stem plus NS *m adj. affix]

332. *dèm   "to hurt, make sick"
Koman: UDUK jàmá' "abscess, ulcer, sore"   [stem plus NS *-Vh n. deriv. suff.]
Sah: KANURI zàm "to attack (of an illness)" (H)
Kir-Abb: Nil: ENil: TESO a-jimi "wound, abscess,   [stem plus NS *-Vh n. deriv. suff.]
    ulcer, sore"

333. *díŋg   "to enter"
Maban: MABA siŋ, PL. singet "door"
Kir-Abb: Nil: ENil: Lotuko-Maa *-jiŋ "to enter"
    (MAASAI -jíŋ)]

334. *dìŋk'   "to shake"
KUNAMA šiko- "to stagger, sway, shake"
Sah: KANURI zək "to shake (tr.)"
Sah: KANURI zázák "to shake out (so contents fall   [partially redup. stem as iter.]
    out)"
SONGAY zìŋgì "to shake (as tree to make fruit fall)"

335. *dõŋg   "to go up and down and back and forth"
Koman: UDUK jògòm "to pump (go up and down or   [stem plus NS *m iter. concis.]
    back and forth)"
SONGAY zùŋgúlù "nodding of head up and down"   [stem plus NS *l iter. plus NS *-uh
                                                 ven.]
Kir-Abb: Daju: SILA joŋgote "frog"   [stem plus NS *tʰ n. suff.; semantics:
                                       reference may be to movement of
                                       frog's throat rather than to its hop-
                                       ping]
Kir-Abb: Nil: ENil: BARI dɔdɔŋ-ga "to shake"   [partially redup. stem as iter.]
Kir-Abb: Nil: ENil: BARI dödöŋ-ga "to swing"   [partially redup. stem as iter.]

336. *dɔ̀l   "to leak"
Koman: UDUK jòlájòl "dribbly (of mouth)"   [adj. by redup. stem]
CSud: BALEDHA jò "snot, mucus"   [BALEDHA j < PCS *d]
Sah: KANURI zàlàlà "to cool by pouring back and   [partially redup. stem as iter. plus NS
    forth" (H)   *-a dispunc.]
FOR jalag- "to vomit"   [stem plus NS *k intens.]
Kir-Abb: GAAM dəl- "to ooze, condense"
Kir-Abb: Nil: WNil: OCOLO jwal "to go under
    (water) and come up again"
Kir-Abb: Nil: ENil: BARI dul-an "to drift (follow the   [stem plus Bari incep. (< NS *n dur.?)]
    current), go downstream"

337. *dú:ɖ OR *dú:ɗ   "crown of head"
Koman: UDUK àjùɗ "cockscomb"   [NS *a- n. deriv. pref. plus stem]
FOR júúrú "brain"   [stem plus NS *-Vh n. deriv. suff.]

338. *dūɖ   "to flow out (especially of body)"
CSud: ECS *ɖu "blood"
Sah: KANURI zús "to vomit"
Astab: Nub: DONGOLAWI šuj "to milk; to give   [Kanuri /z/ -> [s] /_#]
    milk"
Kir-Abb: BERTHA (M) àzùzù, (F) àsùsù "valley"   [NS *a- n. deriv. pref. plus stem; se-
                                                 mantics: "valley" < "river" < "to
                                                 flow"]

339. *dùmp   "to alight, perch"
CSud: ECS *ɖu "to perch"
Sah: KANURI zə̀p "to descend, dismount; to light,
    perch"
SONGAY zùmbù "to descend, dismount; to light,
    perch"
Kir-Abb: Nil: ENil: MAASAI -rjujuma "to sit   [*i- v. class pref. plus stem partially re-
    hunched up"   dup. plus ENil *-a neut.-pass.]

340. *dūŋkʰ   "hump, swelling (on body)"
KUNAMA šukuta "roundness, swelling"   [stem plus NS *tʰ n. suff.]
Sah: KANURI zúgùrè "camel's hump"   [stem plus NS *r and *y n. suff.]
SONGAY zùŋkà "hump of animal"

341. *dù:r   "to skid"
Sah: KANURI zùr "to skid to a halt"
Kir-Abb: Nil: ENil: TESO -jurutar "to skid, slide"   [stem plus NS *tʰ cont. plus Ateker
    (LOAN from Rub?)   itive]
Rub: IK 'jurutum "to be slippery" (LOAN from   [Ateker *-jurut-, plus IK "neuter-pas-
    Ateker?)   sive" in *m]

342. *dù:r   "to scrape out"
Koman: UDUK jùrúm woš "cave" (woš "mountain")   [stem plus NS *m n. suff.; semantics:
                                                 proposed earlier "burrow" for simple
                                                 n., i.e., hole scraped out by animal;
                                                 n. plus woš > "hole in mountain"]
CSud: BALEDHA jù "to root up (large amount)"   [BALEDHA j < PCS *d]

KUNAMA -šurd- "to sweep with a broom made
  from a particular bush"   [stem plus NS *ṭ caus.]
Sah: KANURI zùr "to scoop up"
Astab: Taman: TAMA juːr- "to shave"

This root can be argued to have originated as the transitive variant of root 341 preceding.

343. *ḍwàːk OR *ḍwàːg OR *ḍwàːʄ   "to scoop out, dig out"

Sah: KANURI zààt "to redig well, retap" (H)   [/zagat/, stem plus NS *tʰ cont.]
SONGAY zázágà "to cultivate hard ground"   [partially redup. stem as iter.]
Kir-Abb: Nil: WNil: OCOLO jwäk "to dip"

344. *ḍwàl OR *ḍɔ̀ːl OR *ḍwàl̡ OR *ḍɔ̀ːl̡   "to talk loudly"

Sah: KANURI zòlí "mad"   [stem plus NS *'y n./adj. deriv. suff.]
Astab: Nub: DONGOLAWI jaːl "to shout, talk in
  loud tones"
Kir-Abb: Nil: WNil: OCOLO jwal "to speak in an
  angry tone"
Rub: IK [idɔlídɔl- "to speak with a rough voice":   [*i- v. class pref. plus stem, redup. as
  LOAN (expected *i'jɔl- or *i'jɔɬ-) from uncertain   iter. or intens.]
  source]

345. *ḍwaːr   "spotted, streaked"

KUNAMA šora "variegated, streaked"
Sah: KANURI zàzármà "leopard"   [partially redup. stem plus KANURI
                                                   -ma n. deriv. suff. ("one who does
                                                   or is characterized by")]
FOR jaara "leopard"   [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO jwaar "wrinkles of the
  forehead"

The distinct morphology of the Kanuri and For reflexes shows them to be separate, though seman-
tically parallel, derivations from the root.

346. *ḍwὲ   "hump, raised area"

Koman: UDUK jwà "boil, swelling"
Sah: KANURI zúzù "hump (of person)"   [redup. stem]
FOR jùtà "forest"   [stem plus NS *tʰ n. suff.; semantics:
                                                   presumed earlier sense "mountain,"
                                                   shifted to vegetation once character-
                                                   istic of mountainous For country]
Maban: Maba-Masalit *kijo- "head" (MABA kijik,   [NS *kʰ n. pref. plus stem; -k is Maba
  MASALIT kujjo)   n. sing. marker]
Kir-Abb: Nil: WNil: JYANG jɔt "to lift"   [stem plus NS *tʰ cont.]
Kir-Abb: Nil: ENil: BARI dɔ-ja "to collect (winged   [i.e., to pick them up]
  termites)"
Kir-Abb: Nil: ENil: BARI dome "heap"   [stem plus NS *m n. suff.]

Nilotic developed a verb application of this root, with the meaning "to lift, raise, pick up." The
vowel outcomes allow a possible underlying, derived proto-Nilotic shape *ḍwεːw- for this verb,
stem plus NS *w punctive extension as denominative."

347. *ḍwέːd OR *ḍwέːr   "to strip, make bare"

SONGAY zóorú "to clear field of previous year's   [stem plus NS *-uh ven.]
  stubble"
Astab: Taman: TAMA jaːrε "empty"   [stem plus NS *-eh n./adj. deriv. suff.]

If the reconstruction of this root is *ḍwέːr, then it and root 348 may derive from a single underly-
ing root *ḍwε (tone uncertain): *ḍwέːr ("to strip"), composed of *ḍwε plus the Nilo-Saharan it-
erative in *r, and *ḍwεŋk ("to scrape"), consisting of the Nilo-Saharan durative in *n and inten-
sive in *k.

348. *ḍwὲŋk   "to scrape"   [see note to root 347 for possible derivation]

KUNAMA šangara "rough"   [stem plus NS *r adj. suff.; semantics:
                                                   scratched up]
Sah: KANURI zə̀k "to scrape, grate"
Maban: MABA -suk- "to crush grain between two
  stones, pound, pulverize, grind"
Astab: PNub *jwag "to grind" (DONGOLAWI joːg,
  DILING šwag, NOBIIN jòog-)
Kir-Abb: GAAM ḍɔŋɔr- "to shave (beard)"   [stem plus NS *r iter.]

349. *ḍwìkʰw   "to inhale"

Koman: UDUK jìkʰ "to smell (with nose)"
Koman: Gumuz: SAI šəkw, KOKIT šuxw "to
  breathe"
KUNAMA šuki- "to expire"
KUNAMA šuka "life, vital force"
SONGAY zúkù "to puff, pant"
Astab: NARA šuki "to kiss"
Astab: Nub: DONGOLAWI juːkk- "to inhale"   [gemin. as iter.]
Kir-Abb: C.Jebel: AKA duug- "to taste"

350. *ḍwìr OR *ḍwìd   "to grasp and pull"

Sah: KANURI zə̀rán "to pull out, jerk"   [stem plus NS *ŋ punc.]
Astab: Nub: DILING šurd- "to pull"   [stem plus NS *tʰ cont.]
Astab: Nub: NOBIIN júrr- "to milk"   [gemin. as iter.]
Kir-Abb: Nil: WNil: NAATH jwɪr "grasping"
Kir-Abb: Nil: ENil: BARI dur-jö "to milk"

PROTO-NILO-SAHARAN STEM-INITIAL *nḍ

351. *nḍal OR *nḍaḷ   "to belch, have rumbly stomach"

Sah: KANURI njàrmíl̡ "to cramp, gurgle (of stom-   [stem plus NS *m iter. concis. plus NS
  ach)"   *l iter. (usually > intens. in Kanuri]
Kir-Abb: Nil: WNil: NAATH jal "nausea; to belch"

352. *nḍàmp   "to smell, sniff with the nose"

CSud: PCS *mba "to smell (tr.)"
KUNAMA šambiša "hunger, appetite"   [stem plus NS *tʰ n. suff.]
Sah: KANURI nzàmbú "muzzle"   [stem plus NS *-uh n. deriv. suff.]
Rub: Wn Rub *ɲab "nose"   [this reflex shows that pre-Rub shift
                                                   *NC > *N /#_VN preceded preRub
                                                   *mp > *p > PRub *b]

Probable Saharo-Sahelian innovation: derivation of a noun for "muzzle, snout" from the verb,
possibly by addition of the *-uh noun deriving suffix overtly present in the Kanuri reflex, with a
further shift from "snout" to "nose" in Western Rub.

Rub: Wn Rub *ɲab "nose"

[this reflex shows that pre-Rub shift
*NC > *N /#_VN preceded preRub
*mp > *p > PRub *b]

Probable Saharo-Sahelian innovation: derivation of a noun for "muzzle, snout" from the verb, possibly by addition of the *-uh noun deriving suffix overtly present in the Kanuri reflex, with a further shift from "snout" to "nose" in Western Rub.

353. *ndéŋ "to tell"

Koman: UDUK déŋ "to count, repeat from paper, read"
Koman: Gumuz: SAI nzeŋ, KOKIT nzɛŋ "to count"
KUNAMA šaŋa- "to reproach, censure"

[semantics: as in ENGLISH to tell off]

SONGAY zèntí "to tell (story)"

[stem plus NS *tʰ cont. plus NS *-i itive]

Kir-Abb: Nil: ENil: BARI dɛg-ga "to narrate, relate (a story, etc.)"

[stem plus NS *kʰ iter. (*ndeŋkʰ: *ŋkʰ > KA, PNil *k, hence BARI dɛg-ga; iter. added since KA *e > *i /C_NK?]

Koman semantic innovation: "to tell" > "to count." Probable Sahelian semantic innovation: specialization to story telling.

354. *ndòk "to turn (intr.)"

Koman: UDUK dòkʰ "to return"
Koman: GULE dokut "to wander"
CSud: PCS *nzɔ OR *njo "to differ"
KUNAMA šakota "roundness"

[stem plus NS *tʰ cont.]
[semantics: see Gaam entry]
[stem plus NS *tʰ n. suff.; expected [g] for [k]?]

SONGAY zògò "to turn the head, turn or veer around"
Kir-Abb: GAAM dɔgèɛg "difference"

[stem plus NS *'y ess.-act. or n/adj. suff. (*dogay > *dɔgɛɛ- by regular shift), plus probably NS *kʰ pl. suff.; semantics: "turn" > "change" > "become different"]

Kir-Abb: Daju: SILA ndukum- "to stoop down"

[stem plus NS *m iter. concis.; semantics: "turn" > "bend (down)"]

Kir-Abb: Nil: WNil: OCOLO jok "to head off"

[semantics: make turn (from course previously followed)]

Kir-Abb: Nil: WNil: OCOLO [dɔk "to return": LOAN from Koman language]
Rub: IK i'jok- "to lend"

[*i- v. class pref. plus stem; semantics: "turn" > "change" > "exchange (goods)" > "exchange by lending"]

355. *ndòkʰ "anus"

CSud: ECS *nzɔ "anus"
Sah: KANURI kànzə́gə̀ "hip, hipbone, waist"

[NS *kʰ n. pref. plus stem plus NS *-Vh n. deriv. suff.]

SONGAY zékérì "buttock"

[stem plus NS *r n. suff.; regressive V assim., *zokeri > *zekeri]

356. *ndɔ́ OR *ndɔ̃ "to squeeze"

CSud: ECS *nzɔ "to press out"

CSud: PCS [*jo "to milk": LOAN from probably an ESah language]
KUNAMA šu- "to milk"

[stem plus NS *w punc. (< *šow-), structure overtly attested in Tama]

Sah: KANURI nzə́t "to wring, squeeze out, press out"

[stem plus NS *w punc. plus NS *tʰ cont. (*ndɔwtʰ > *ndotʰ > nzət)]

FOR nànsú, PL. kànsú "breast"

[NS *a- n. deriv. pref. plus stem of *ndɔw "to milk"; semantics: presumed earlier "udder" > "breast"]

Astab: Taman: TAMA juw- "to milk"
Astab: Taman: TAMA ojut, PL. ojuwɛ "breast"

[stem plus NS *w punc.]
[NS *o- n. deriv. pref. plus stem; semantics: as in For case]

Kir-Abb: GAAM dən- "to milk"

[stem plus NS *n dur. (NS *w punc. may or may not have once been present in this form)]

Rub: PRub *'jut "to milk"
Rub: SOO 'juθ "to pinch"

[structure as in Kanuri reflex]
[stem plus NS *w punc. (to explain stem V raising) plus NS *θ intens.]

Northern Sudanic semantic cum morphological innovation: Derivation of a root *ndɔw "to milk" by adding the *w punctive extension to the stem is indicated by the general vowel-raising shift accompanying the meaning shift and is still directly evident in the Tama shape. The root was reassigned non-technical uses in Kanuri and Soo by addition of further verb extensions in each case. The presence of the root in two distinct versions in Central Sudanic—one of them with regular sound correspondences having the more general meaning, and the other a loanword bearing the technical meaning, "to milk"—confirms that the milking of livestock arose after the separation of the ancestral tongue of Central Sudanic from the common ancestor of the other attesting languages, i.e., proto-Northern Sudanic. The parallel derivations of a noun for "breast," seen in the For and Tama reflexes, probably reveal area influences in the Darfur region rather than an old, shared Sahelian innovation.

357. *ndɔ́:d OR *ndɔ̃:d "to squat"

Sah: KANURI njɔ́l "to squat down"
Kir-Abb: Nil: ENil: TESO -jor "to squat"

358. *ndúl "to seep out, leak"

Koman: UDUK dúɗ yìɗé' "water spring up from below" (yìɗé' "water")
CSud: PCS *nzu "to leak"
KUNAMA šullub- "to drip out to the last drop"

[stem plus NS *p extend.]

Sah: KANURI njúlúlú "urine"

[stem partially redup plus NS *-Vh n. deriv. suff.]

Kir-Abb: BERTHA (M) zùrè, (F) sùrè "marsh"
Kir-Abb: Nil: WNil: JYANG juol "to soak"

[stem plus NS *y n. deriv. suff.]

Saharo-Sahelian semantic innovation: The reflexes in Saharan and Kir-Abbaian all can be suggested to show a shift in connotation of the verb from a relatively constant and slow emission of fluid (seen in the Uduk, Central Sudanic, and Kunama meanings) to a more concerted and/or voluminous movement or presence of liquid.

359. *ndwák "to doctor"

Koman: UDUK dwákʰ "to placate, killing animal for crops"
Astab: Nub: DONGOLAWI do:gir "magician, sorcerer"

[stem plus NS *r n. suff.]

Kir-Abb: Nil: PWNil *jɔk/*jwak "spirit, supernatural force or power"

PROTO-NILO-SAHARAN STEM-INITIAL *nð

360. *nðàkʰ OR *nðàk'   "to chew"
KUNAMA šakama "chewing (especially the sound made by animal chewing)" (šakamu- "to make the noise of chewing")   [stem plus NS *m n. suff.; v. < n.]
Sah: KANURI nzàk "to express disgust by ts-ts" (H)
Sah: KANURI nzàat "to chew continuously" (H)   [/nzagat/, stem plus NS *tʰ cont.]
Astab: Nub: DONGOLAWI jakam "cheek"   [stem plus NS *m n. suff.]
Kir-Abb: Nil: ENil: PTung'a *-dak "to eat, graze"
Kir-Abb: Nil: ENil: BARI ɗako', PL. ɗakole "palate"   [stem plus NS *l n. suff.]

361. *nðap OR *nðab OR *nðaɓ   "stalk, stem"
CSud: ECS *anja "genitals"   [CSud *V- pref. (NS *a- attrib.) plus stem; semantics: original referent surely was "penis" > "genitals" in general]

KUNAMA šaba "stem, stalk, staff, rod"
FOR saba "fence post" (B)
Astab: Nub: DILING jabuł "straw"   [stem plus NS *r n. suff. (> DILING ł /V_#)]

Kir-Abb: Nil: SNil: NANDI [saporio "trunk" (*sapo:r-): LOAN from ESah language in which NS *nð > *s and NS *r > *r (Rub?)]   [stem plus NS *r and *'y n. suff.; < source not marking vowel length or +/- ATR]

362. *nðɛp'   "to rub (with a tool), scrape"
Koman: UDUK šápárášápār "coarse, as of ground food like porridge"   [adj. by redup. of stem plus NS *r iter. (i.e., grind) or NS *r or *d adj. suff.]

CSud: ECS *njɛ "to rub"
SONGAY zèbù "to plane, scratch, abrade"   [stem plus NS *-uh ven.]
Rub: IK séɓ- "to sweep, wipe"
Rub: IK [ɪsɛɓ- "to tattoo": LOAN (expected high tone) from language in which mid tone > low]   [*i- v. class pref. plus stem]

363. *nðô OR *nðôh   "time, occasion"
Koman: UDUK šwàné "today, now"   [stem plus UDUK āné "here" (see root 256)]

Koman: UDUK šūnsān "just now, right now" (-sān suff. of immediacy of place of time)   [stem plus either NS *n n./adj. suff. or Uduk epenthetic -N- in compound formation, plus -sān suff. (for which see root 1154)]

CSud: PCS *njo "time"
Kir-Abb: GAAM jùùn "ago, the past"   [stem plus NS *w and *n n./adj. suff.]
Kir-Abb: Nil: ENil: TESO do "then"

364. *nðókʰ   "to bite into"
CSud: ECS *njɔ "sharp, hot (taste)"
SONGAY zókòm "to peck, bite in tearing off"   [stem plus NS *m iter. concis.]
Astab: PNub *jokk- "to masticate, chew"   [gemin. as iter.]

365. *nðɔ:k'   "to pick loose, break off"
Koman: Sn Koman *šok'en "louse" (KOMO šuʔɛn, OPO šuk'ɛn)   [stem in narrowed meaning "to pick lice," plus NS *n n. deriv. suff.; for stem V *o, see Uduk entry]

Koman: UDUK àšōkōm "louse"   [NS *a- n. deriv. pref. plus stem plus NS *m n. suff.; semantics as in related Sn Koman root]

CSud: PCS *njɔ "to loosen" (AJA "to loosen, untie")
KUNAMA šoke- "to tear, husk a corncob or the like"
Sah: KANURI nzók "to pick, chip off" (L: "to cut off, cut out")
Kir-Abb: GAAM jàôd- "to damage, demolish, distort, make ugly, ruin, spoil" (*jǝgd-)   [stem plus NS *tʰ cont.]

366. *nðɔ:T₂   "to suck"   [T₂ = t̪, t̪ʰ, t̪', or tʰ]
Sah: KANURI nzòt "to kiss"
Kir-Abb: Nil: WNil: OCOLO ɗot̪ "to nurse, suck"; ɗwɔt̪ "to suckle, nurse"

367. *nðùl   "to rise up"
Koman: UDUK šūl "prolifically, of grain"   [semantics: "rise up" > "grow (prolifically)"]

KUNAMA šuli- "to raise the shoulders to get a better look upward"
Sah: KANURI nzàrgà "to increase"   [stem plus NS *k caus. plus NS *-a dispunc.]

Kir-Abb:Nil: WNil: OCOLO ɗul "to grow up quickly, shoot up"
Kir-Abb: Nil: ENil: BARI [julud-dya "to swell from a blow": LOAN (expected *ɗul-)]   [stem plus NS *tʰ cont.]
Kir-Abb: Nil: PSNil *tuluа "hill"   [stem plus SNil *-uɑ (NS *w) n. suff.)]

368. *nðù:n   "to suck"
CSud: ECS *nju "to suck"
KUNAMA šuni-, šunfi- "to suck"   [2nd entry: stem plus NS *pʰ extend. intens.]
Sah: KANURI nzùnzùn "to suck on"   [redup. stem as iter.]
Kir-Abb: GAAM jūūn- "to suckle (of infant)"

369. *nðūr OR *nðūd   "to move quickly"
Sah: KANURI nzárák "to start, make sudden move" (H)   [stem plus NS *-a dispunc. plus NS *k intens.]
SONGAY zùrù "to flee, run away, escape"
Kir-Abb: Nil: WNil: NAATH ɗwor "to get away"

Probable Sahelian semantic innovation: narrowing of the application of the verb to a particular kind of fast movement, fleeing or escaping.

PROTO-NILO-SAHARAN STEM-INITIAL *ɲ

370. *ɲa   "who?"
Sah: DAZA nya "who?"
Maban: MABA nya "who?"
Maban: MABA nye "what?"

[*ɲa-y, stem plus NS *y- dem. (root 1468)]

Kir-Abb: Nil: PENil *-ɲɔ "what?"

[probably *ɲa-w-, stem plus NS *wa indef. pron. stem (root 1369)]

371. *ɲà, *ɲàɲà   "to expand"
Koman: UDUK nyányè' "large amount, liberally, more"

[redup. stem plus NS *-eh n./adj. deriv. suff.]

CSud: PCS *ɲa "to spread apart"
KUNAMA anya "fat (n.)"

[NS *a- n. deriv. pref. plus stem; for an alternative possible etymology, see root 383]

KUNAMA nyanyuma "full, bulging"
FOR *ɲa- "to increase"
Kir-Abb: GAAM əndág "much; very"

[redup. stem plus NS *m adj. affix]

[NS *a- n./adj. deriv. pref. plus stem plus NSud *ʈ n. suff. plus NS *k adj. suff.]

Kir-Abb: Nil: PNil *ɲaɲa "to expand, increase" (WNil: OCOLO nyanyo "to increase greatly; very much"; ENil: TESO nyanyaar "to fester, spread")

[redup. stem; TESO: redup. stem plus Ateker andat.]

Kir-Abb: Nil: WNil: OCOLO nyaŋ "to stretch out, spread out"

[stem plus NS *ŋ punc.]

372. *ɲáh   "female"
Sah: KANURI kə́nná "female calf"

[Kanuri *kən- n. deriv. pref. (form of NS *kʰ n. pref.) plus stem]

Sah: KANURI nə́ná "princess"
SONGAY ɲâ "mother"

[redup. stem]

Kir-Abb: GAAM ɲɛ́ɛ "female"

[stem plus NS *y n./adj. deriv. suff.]

Kir-Abb: Nil: PWNil *ɲa-/*ɲi- << diminutive/ feminine prefix >>

373. *ɲàkʰ   "to move the jaw"
KUNAMA ɲakaɲaka "jaw"

[stem redup. (from chewing motion?)]

Sah: KANURI nàwúr "to gnaw on"

[stem plus NS *r iter.]

SONGAY ɲàkúɲàkú "to make face, insult by making face with mouth or teeth"

[stem plus NS *-uh ven., redup. as iter.]

Kir-Abb: GAAM ɲəəm, PL. ɲəəmg "beard, whiskers"

[stem plus NS *m n. suff.; semantics: "jaw" > "chin" > "beard"]

Kir-Abb: C.Jebel: KELO ɲeed- "to lick"

[< *ɲaged-, stem plus NS *tʰ cont.; loss of medial velar stop is regular shift in Kelo]

Kir-Abb: Nil: PENil *-ɲak- "to chew"
Kir-Abb: Nil: ENil: BARI nyɛkɛm "chin"

[stem plus NS *m n. suff.]

Kir-Abbaian innovation: derivation of a noun for "chin" from this verb by addition of the NS *m noun deriving suffix. The shift of underlying *ɲakɛm to *ɲɛkɛm by regressive assimilation in both the Gaam and the Bari reflexes indicates that this assimilation may also belong to the proto-Kir-Abbaian period.

374. *ɲá:ɬ   "to shine, burn"
CSud: BALEDHA ndra "briller"
SONGAY ɲáalá "to shine"
Astab: Nub: DONGOLAWI koɲall- "mirror"

Kir-Abb: Nil: WNil: OCOLO nyal "to singe"

[NS *kʰ n. pref. plus stem; semantics: "shine" > "reflect"]

375. *ɲà:ŋ   "crocodile"
Koman: UDUK ànàŋa' "crocodile"

CSud: PCS *ɲa "large aquatic beast" (usually "crocodile")
Kir-Abb: GAAM ɲaaŋ "crocodile"
Kir-Abb: PNil *ɲa:ŋ "crocodile"

[NS *a- n. deriv. pref. plus stem plus NS *-ah n. suff.]

376. *ɲapʰ   "to grow greatly" [root 371 plus NS *pʰ extend. intens.]
Koman: UDUK nyàpʰá' "profusely, as of seed growing thickly, of growth"

[stem plus NS *-Vh n./adj. deriv. suff.]

SONGAY ɲafindi "to be hefty" (P)

[stem plus Songay caus. *-indi, probably as deverb. of earlier pre-Songay n. or adj. reflex]

A short vowel is reconstructed here because it is required by the apparent underlying root, 371.

377. *ɲè   "to break to pieces"
CSud: PCS *ɲe "to break to pieces"
Sah: KANURI nyè "to grind"
Rub: IK íny- "to knock, pound (e.g., in mortar), box"

[*i- v. class pref. plus stem]

378. *ɲéɬ   "small"
CSud: PCS *ɲe "small"
Maban: MABA nyelik "small; junior, younger"

[-k is Maba n./adj. sing. suff.]

Kir-Abb: GAAM ɲaan, PL. ɲalg "narrow, small, young"

[sing.: < *ɲaɬan, with common Gaam deletion of *ɬ /V_V; shift of NS *ɬ > Gaam /l/ in pl. and abstract forms remains to be defined: possibly /C₁V_(V)C₂/, where C₁ = palatal (see root 1217 for another example)]

Kir-Abb: GAAM ɲili "childhood"

[stem plus NS *-Vh n. deriv. suff.; see preceding Gaam entry for explanation of /l/ < NS *ɬ]

Kir-Abb: GAAM ɲáá, PL. ɲélg "daughter, girl"

[stem plus NS *-Vh n. suff.; see 1st Gaam entry for variant outcomes of NS *ɬ]

Kir-Abb: C.Jebel: AKA ɲiila, KELO ɲeela "boy"
Kir-Abb: NYIMANG kaɲèr, DINIK ɲirì "new"

[V length remains to be explained]
[NS *kʰ n./adj. pref. plus stem]

Kir-Abb: Nil: PWNil *ɲaɬ "girl" (NAATH nyaɬ, OCOLO nyan)
Kir-Abb: Nil: WNil: OCOLO nyɛl "boy"
Kir-Abb: Nil: WNil: proto-Luo *ɲan "new"

Kir-Abb: Nil: WNil: JYANG nyal "new"

[common Luo nasal assim., *ɬ > n /#Na_#, seen also in Ocolo reflex of WNil "girl"]

Kir-Abb: Nil: ENil: Lotuko-Maa *-ŋejuk "new" (MAASAI -ŋéjúk) | [stem plus NS *k adj. suff.; palatal dissim. (PNil *ɲ > ENil *ŋ /_Vj)]

Kir-Abb: Nil: PSNil *ɲalʸeːlʸ "new" | [stem plus NS *l n./adj. suff.]

Sahelian semantic innovation: The addition of an associated meaning "young (of person)" is evident on the surface in the Maba and Gaam adjectives and implied by the derived Kir-Abbaian nouns. Kir innovation: shift of the meaning in adjectival reflexes from "young" to "new."

379. *ɲèm "to chew"

Koman: UDUK nyèmès "gizzard" | [stem plus NS *s n. suff.]

Sah: KANURI ànə̀m "chew-stick" (Angeissus leiocarpus) | [NS *a- attrib. pref. plus stem; semantics: plant from which tooth cleaning stick is made]

Maban: MIMI nyam "to eat"

Kir-Abb: C.Jebel: AKA ɲaam, MOLO, KELO ɲəm "to eat"

Kir-Abb: Nil: WNil: OCOLO nyam "to chew, eat"

Kir-Abb: Nil: ENil: TESO -nyam "to eat"

Kir-Abb: Nil: SNil: DATOGA *gaɲam "chin" | [NS *kʰ n. pref. plus stem; semantics: cf. root 373]

380. *ɲéh "sheath (for weapon)"

Koman: UDUK nyáányè' "spear sheath" | [redup. stem (*nye-a-nye')]

SONGAY ɲâ "sheath, scabbord"

381. *ɲèk' "to do without"

CSud: PCS *ɲɛ "to not do"

Kir-Abb: Nil: ENil: TESO -ɲɛkın "to leave; abandon; avoid; cease" | [stem plus NS *n dur.; or contraction of *ɲɛkakın, stem plus Ateker benef.; or stem *ɲɛ, LOAN from CSud, plus Ateker benef.?]

Rub: PRub *ɲɛk' "hunger" (IK ɲɛk')]

382. *ɲíːr "to twist, turn, bend (intr.)"

Koman: UDUK nyír "to twist, as of rope; to take turns, change off"

CSud: ECS *ndri "to move in winding fashion"

Kir-Abb: Nil: SNil: Kalenjin *ɲiːʀ "to bend the bow" | [semantics: shift, intr. > tr. sense]

383. *ɲo "joint of body"

CSud: PCS *ɲɔ "joint, limb"

KUNAMA nya "meat"

KUNAMA anya "fat" | [NS *a- n. deriv. pref. plus stem; see root 371 for possible alternative source]

Maban: MABA nyo "meat"

Maban: MABA nyok "cadaver" | [-k is Maba sing. marker]

Maban: MIMI nyu "meat"

Astab: NARA no, PL. nota "piece of meat" (PL. "meat")

Kir-Abb: C.Jebel *aɲo "fat" (MOLO aɲowa, KELO aɲo) | [NS *a- n. deriv. pref. plus stem]

Apparent Northern Sudanic semantic innovation: shift from "joint of the body" to "joint or portion of meat." The development of the meaning "meat" in Kunama and Maban is here proposed to re-

flect separate parallel developments in the two language groups, because the simple root retains the meaning "piece of meat" (i.e., joint) in Nara of Eastern Sudanic. If the second Kunama entry correctly belongs under this root (rather than under 371 above), then a Northern Sudanic innovation of a noun for "fat" is indicated by the Kunama and Central Jebel evidence.

384. *ɲóːh "to anoint, smear"

SONGAY ɲóon "to anoint, smear, coat" | [stem plus NS *n dur.]

Astab: Nub: NOBIIN nóo- "to anoint, smear fat"

Astab: Nub: NOBIIN nóoy "fat, grease" | [stem plus NS *-ih or *'y n. deriv. suff.]

Kir-Abb: Nil: ENil: TESO -nyonyo "to anoint, smear" | [redup. stem as iter.]

385. *ɲòkʰ OR *ɲòːkʰ "to be pressed close together"
[stem *ɲo- of root 386 plus NS *kʰ intr.?]

Koman: UDUK nyòkʰ "to taste (rope)" | [i.e., be tied together or snared by rope]

SONGAY nyukunyuku "to be compact, dense" (P) | [redup. stem plus NS *-uh ven.]

Kir-Abb: Nil: WNil: OCOLO nyok "to come up close together (of grass and weeds)"

Other possible reconstructions: *ɲōkʰ or *ɲōːkʰ.

386. *ɲom "to squeeze with the fingers" [stem *ɲo- of root 385 plus NS *m iter. concis.]

KUNAMA -ɲam- "to knead"

SONGAY ɲómtì "to pinch" | [stem plus NS *tʰ cont.]

387. *ɲɔ OR *ɲɔh "to bite"

CSud: PCS *ɲɔ "to eat"

CSud: PCS *aɲɔ "food" | [CSud *a- pref. (NS *a- attrib. n. pref.) plus stem)]

Kunama ILIT nya "to bite"

Sah: KANURI náná "to gnaw on" (H) | [redup. stem as iter. (expected *nánà ?)]

Maban: MABA -nyà "to eat" (L)

Maban: MABA nya "food"

Maban: MIMI nyo "mouth"

Kir-Abb: Surmic *aɲɔ "louse" | [NS *a- n. deriv. pref. plus stem; semantics: "biter" (for semantically parallel derivation of Astaboran root for "louse," see root 1186)]

Kir-Abb: PNil *ɲoːk "louse" | [stem plus probably NS *k singul. added to root normally used in pl., or else plus NS *kʰ pl. as coll.; semantics: see Surmic entry]

Surma-Nilotic innovation: derivation of a shared root word for "louse" from this verb, probably by addition of the Nilo-Saharan *a- attributive noun forming prefix. Though this marker remained productive in early Nilotic, and is still productive in some Western Nilotic languages, many of its occurrences in proto-Nilotic words appear nevertheless to have been deleted by a more general proto-Nilotic rule, *V > Ø /#_CVC. This effect can be proposed to account for its lack here in the proto-Nilotic reflex.

388. *ɲɔ́á'y OR *ɲɔ́há'y "to chew" [root 387 plus NS *'y ess.-act.]

Sah: KANURI náínáí "to gnaw" | [redup. stem as intens./iter.]

Kir-Abb: Nil: PNil: *ɲway "to chew" (WNil: NAATH nywe "to chew"; ENil: BARI nyó-su, nyé-su "to eat"; MAASAI -nyá "to eat," -nyaal "to chew"; SNil: NANDI nye "to chew")] | [Maasai "to eat": stem plus NS *-a dispunc. (ENil neut.?); 2nd Maasai v.: 1st Maasai v. plus NS *l iter.]

389. *ɲɔ́ː   "to send out, put forth, present"

Sah: KANURI nót- "to commission (someone), send   [stem plus NS *tʰ cont.]
(messenger), make use of (arms)"

SONGAY nó "to give"

Maban: MABA -nyo- "to give" (L: nyù-)

Maban: MABA nyok "gift"   [-k is Maba n. sing. suff.]

Kir-Abb: Surmic: S.Surmic *-ɲɔ "to give"

Kir-Abb: Nil: WNil: JUMJUM eɲə "to give"

Probable Sahelian semantic innovation: development of the specific sense "to give" from a root with originally a more unspecified implication of moving things or people to somewhere else.

390. *ɲɔ́ːh   "dirt, rubbish"

Koman: UDUK nyò'ányò' "dirty"   [adj. by redup. stem]

CSud: PCS *ɲɔ "earth, soil"

FOR aɲuŋa IN kobiŋ aɲuŋa "beeswax" (kobi-ŋ <   [NS *a- attrib. n. pref. plus stem plus
kobi "honey" plus FOR -ŋ gen.)   FOR -ŋa pl.; semantics: refuse of
honey]

Kir-Abb: Nil: WNil: JYANG anyuon "dirt"   [NS *a- attrib. n. pref. plus stem plus
NS *n n. suff.]

Kir-Abb: Nil: ENil: BARI nyɔt "dregs (pl.)"   [stem plus BARI -ɔt pl. n. marker]

391. *ɲɔ́m   "to break (tr.)"

Sah: KANURI nàm "to break (tr.)"

Kir-Abb: GAAM ɲəm- "to break, tear down"

392. *ɲɔ́ŋkʼ   "to move aimlessly, do without effect, do poorly"

Koman: UDUK nyòŋkʼór "lazy in everything"   [stem plus NS *r or *d modif. suff.]

CSud: ECS *ngɔ "to wiggle, move restlessly"

FOR ɲòkké "weak"   [stem plus NS *-eh or *y n./adj. suff.
with For gemin. of medial C in adj.]

SONGAY ɲòŋgòlòm "degoûtant, mal arrangé"   [stem plus NS *l iter. plus NS *m adj.
affix.]

Kir-Abb: Nil: SNil: DATOGA ɲogud- "to bend, roll"   [stem plus NS *tʰ cont.; PNil *k, *t >
DATOGA g, d by regular rule]

Rub: IK inyókʼ- "to repeat"   [*i- v. class pref. plus stem; semantics:
to do over and over again]

393. *ɲɔ́ːr   "to be angry"

Koman: UDUK nyòr "angry"

Koman: UDUK ànyór "anger, pain"   [NS *a- n. deriv. pref. plus stem]

CS: ECS *ndrɔ "to speak ill of"

Maban: MABA -nyon- "to be angry"

Kir-Abb: Nil: ENil: TESO -nyunyur "to be angry,   [partially redup. stem plus ENil *-a
discontented, indignant"   neut.-pass.]

Rub: IK [inyunyur- "to feel annoyed": probable loan   [partially redup. stem]
from Ateker (Teso, etc.)]

394. *ɲɔ́ːţʼ   "to be weak, thin, slight"

Koman: UDUK nyúţʼ "to narrow"

Koman: UDUK nyúţányùţʼ "narrow"   [adj. by redup. stem]

CSud: PCS *ɲɔ "small, weak"

SONGAY ɲòotí "to move slowly"   [stem plus NS *'y ess.-act.]

Kir-Abb: GAAM [ɲuɫun "calm, safe; poor": probable   [stem plus NS *n modif. suff.]
LOAN from Koman (ɲuɫ- for expected *ɲəɫ-)]

Kir-Abb: PNil *ɲɔːţ "weak" (WNil: OCOLO nyɔţ
"soft, weak, easy"; SNil: Datoga *ɲoːdad "weak")

Kir-Abb: Nil: ENil: BARI [nyɔ-ja "to get up with dif-
ficulty": LOAN (from unrecorded CSud form:
*C# > Ø)]

395. *ɲúh   "to apply water to, put fluid into"

Koman: UDUK nyú' "to squeeze, wring (e.g., lem-
ons)"

CSud: ECS *ɲu "to extinguish (fire)"

SONGAY ɲùnà "to wash (clothing)"   [stem plus NS *n dur. plus NS *-a dis-
punc.]

Kir-Abb: GAAM ɲuud, PL. ɲuuɫg "steam, vapor,   [stem plus NSud *ţ n. suff.; semantics:
smoke"   original application would have been
to steam, produced by pouring water
onto something hot]

Kir-Abb: NYIMANG ɲuai- "to fill"   [stem plus NS *'y ess.-act. (*-a'y)]

Kir-Abb: Nil: WNil: OCOLO nywiy "to sprinkle"   [stem plus NS *'y ess.-act. (*-i'y)]

396. *ɲur OR *ɲuːr   "to claw, scratch with the nails or claws"

FOR ɲurt- "to claw (as lion)"   [stem plus NS *tʰ cont.]

Kir-Abb: proto-Daju *ɲur- "claw"

PROTO-NILO-SAHARAN STEM-INITIAL *ɗ

397. *ɗaːɲ   "to lick"

Sah: KANURI gánd- "to lick"   [stem plus NS *tʰ cont.]

Astab: PNub *gaɲ "to lick" (DONGOLAWI gaːɲ,
DILING kaɲ)

398. *ɗâpʰ   "to proffer, present, bestow"

CSud: PCS *gba "to proffer, present"

Kir-Abb: GAAM gɜf- "to give"

399. *ɗapʼ   "to shell, hull"

CSud: PCS *gba "hull, shell"

KUNAMA angafeta "bark, crust"   [NS *a- n. deriv. pref. (with unexpected
epenthetic *N) plus stem plus NS *tʰ
n. suff.]

Astab: Nub: DONGOLAWI gaww- "to hull, shell"

Kir-Abb: Nil: BARI gapet "covering"   [stem plus ENil *-et deverb. suff.]

400. *ɗapʼɔtʰ   "shell, hull"   [root 399 plus NS *tʰ n. deriv. suff.]

KUNAMA gafota "tortoise"

SONGAY gáptà "large calabash"   [Songay /b/ -> [p] /_t]

Astab: Nub: DONGOLAWI gabad "bark (of tree)"

401. *ɟaːr "to encircle, enclose"

Koman: UDUK gàŋgàrà' "fence" [partially redup. stem plus NS *-Vh n. deriv. suff.]

Sah: KANURI gàr "to build (town, house)"
Sah: KANURI gàrú "wall" [stem plus NS *-uh n. deriv. suff.]
Sah: KANURI gàrgàrá "fenced place" [redup. stem plus NS *-Vh n. deriv. suff.]
Sah: KANURI gàrgàrí "circle of hair on the head; enclosed farm" [redup. stem plus NS *-ih n. deriv. suff.]
FOR dáárí "enclosure, fold" [FOR d- sing. pref. plus probably NS *a- n. deriv. pref. plus stem (*d-a-gaar-) plus number suff.]

Maban: MABA garak "ring" [stem plus NS *-Vh n. deriv. suff. (plus MABA -k n. sing.)]

Astab: PNub *gaːr- "to embrace, clasp" (NOBIIN gàar-; DONGOLAWI gaːrɛ) [Dongolawi: stem plus NS *'y ess.-act.]
Kir-Abb: GAAM gàr "enclosure"
Kir-Abb: Nil: WNil: OCOLO gär "to fasten, bar"

402. *ɟáːr OR *ɟáːd "to cross"

Koman: UDUK gár k'ós "to pass on road when only two passing" (k'ós "front")
CSud: PCS *ɟa OR *ga "to pass over, pass by"
SONGAY gáarú "to intersect, lay athwart" [stem plus NS *-uh ven.]
Astab: Nub: DILING kartor "to flow into, run into" [stem plus NS *tʰ cont. plus. Nubian *r caus.]

Kir-Abb: Nil: OCOLO [gar "to butt into a conversation": LOAN (expected *gär)]
Kir-Abb: Nil: ENil: BARI gar-a "to straddle" [stem plus Bari pass.]

403. *ɟàyn OR *ɟáyn "well thought of, of good repute"

Koman: UDUK gánà' "true" [stem plus NS *-Vh n./adj. deriv. suff.]
KUNAMA gende- "to strut, be conceited" [stem plus NS *t caus. as denom.; semantics: to think well of oneself]
KUNAMA gendera "snobbery" [Kunama v. plus NS *r n. suff.]
Astab: PNub *gen "good" (DONGOLAWI gɛn "good," gɛnd- "to become good"; DILING ken "good"; NOBIIN gèn "good") [2nd Dongolawi entry: stem plus NS *t caus. as denom.]
Kir-Abb: GAAM [gánán- "to be content, satisfied": LOAN, probably from Koman (/a/ for expected *ə as 1st V)] [stem plus NS *n dur. or *n modif. suff. with v. < earlier adj.]
Kir-Abb: Nil: WNil: OCOLO [gän "to honor, respect, think of, eat mannerly": LOAN, probably from Koman (/ä/ for expected *ɛ)]

The Gaam and Nilotic forms reconstruct as proto-Kir-Abbaian *gaːn or *ɟaːn, instead of expected *gayn or *ɟayn. They may therefore reflect an ancient Koman loanword in proto-Kir-Abbaian. Alternatively, they may be separate later Koman loans into the Jebel and Western Nilotic subgroups of Kir-Abbaian.

404. *ɟéb / *ɟíb "to become moist"/"to be immersed"

CSud: PCS *gɓɛ "to drip, leak, flow"
KUNAMA gibi- "to dissolve flour in liquid"
Sah: KANURI gəváɡəvál "to mix up (liquid)" and "to rinse hand in water [H]" [stem plus NS *-a dispunc. redup., plus NS *l iter.]

SONGAY jéw̃ "cold season" [stem plus NS *-uh n. deriv. suff.]

For other examples of this kind of stem-vowel alternance and its semantic effects, see note to root 126.

405. *ɟènt "he-goat"

SONGAY jìndì "he-goat"
Rub: Wn Rub *ɟet "he-goat" (SOO ɟèt) [stem plus NS *-i n. sing. marker]

406. *ɟér "anger, bad feeling"

CSud: PCS *ɟe "anger"
KUNAMA garo- "to be distressed, worry"
Sah: KANURI gərgá "to become angry" [stem plus NS *kʰ intr. as denom, plus NS *-a dispunc.]
Kir-Abb: GAAM gərs- "to not want, refuse, dislike, hate" [stem plus NS *s prog. as denom.]
Kir-Abb: Nil: ENil: MAASAI -goro "to be angry" [stem plus NS *w punc. (as *-aw denom.); presumed regressive assim. in earlier *-gero]

407. *ɟɛm "to observe, take note of"

Koman: UDUK gàm "to find"
Koman: Gumuz *gəm "to see" (SESE "to know")
Sah: KANURI gám "ideophone of something standing perfectly still"
PRub *ɟɛm- "to be still" (WRub *ɟɛmɛc "to sit"; IK ɪ'jɛm "to be silent")

Saharo-Sahelian semantic innovation: "observe" > "watch" > "wait," hence, "stay still."

408. *ɟɛn "louse"

FOR nínáŋ, PL. kíná "louse" [earlier sing. *ni-gin-, pl. *ki-gin-, with regular For deletion of *g]
FOR dèìnòŋ, PL. kèìnò "bedbug" [*-aino- < *-agino-, NS *a- n. deriv. pref. plus stem, with regular For deletion of medial *g]
SONGAY géní "louse"
Kir-Abb: Jebel *gɛn- "louse" (AKA gɛɲɛ, MOLO giɲo, KELO əəɲə) [*ɲ, otherwise unexpected, is probably an old substitution, now lexicalized, of ESah *ɲ pl. for stem-final *n ("lice" being commonly spoken of in the pl.)]
Rub: Wn Rub *ɟɛn "louse"

409. *ɟèwáːh "stomach"

CSud: PCS *guo OR *ɟuo "chest"
KUNAMA aga "navel"
Rub: PRub *ɟɛwah "stomach" (SOO ɟɛwât, PL. ɟɛwá' "intestine"; IK gwa (gwaa-) "stomach") [NS *a- n. deriv. pref. plus stem]

410. *ɟɪ "someone, something"

Koman: UDUK gì, PL. gù "who, which" (rel. pron.)
CSud: PCS *ɟi OR *gi (PL. *ɟu OR *gu) "thing"
CSud: PCS *ɟu "self, person" [stem plus NS *w n. deriv. suff. (< pre-PCS *ɟiw)?]

CSud: WCSud: KRESH -g- << base of plural pro-
 nouns >> (aga "we"; ígí "you (pl.); igi "they") | ["we": stem plus *ah 1st person sing. stem (root 1583); "you (pl.)": stem plus *i 2nd person sing. marker; "they": stem plus reduced form of *yɛh "they" (root 1493); in each case, person marking added to form VCV pron. shape]

Sah: KANURI àgó "thing" | [NS *a- n. deriv. pref. plus stem plus probably NS *w n. suff. substituted for stem V (*a-g-aw)]

FOR gí, gì << participant object pronoun >>

Kir-Abb: W.Jebel *-g- << base of plural pronouns >> (*Vgay "we"; Vgu "you (pl.)"; *Vge "they") | [*Vga, stem plus NS *ahay 1st person sing. pron. (root 1583); *Vgu, stem plus NS *u 2nd person pl. marker (root 1403); *Vge, stem plus NS *yɛh "they" (root 1493)]

Kir-Abb: GAAM ään / óón / ēēn "I"/"you (sing.)"/ "she, he, it" | [Kurku dial. evidence (Bender and Ayre 1980) shows these are respectively < *agan, *ogon, and egɛn, each comprised of person element plus stem *-g- plus *n n. suff.; see roots 1583, 1403, and 1588 for the respective person elements of each]

Kir-Abb: BERTHA gi << 1st person object pronominal >>

Kir-Abb: BERTHA (F) gíŋ, (M) jíŋ "thing" | [stem plus NS *ŋ n. suff.]
Kir-Abb: Surmic: S.Surmic: DIDINGA gi "thing"

Kir-Abb: PNil *gi "thing" (WNil: Luo *gi; SNil: Kalenjin *kíʀ) | [Kalenjin: stem with *'y n. suff. > *ʀ /#(C)V_#, where V = [+ATR]; see also roots 625, 1487, and 1533 for this shift]

Rub: SOO íɟè "all" | [stem (*iɟ, with regular Rub metathesis shift of #CV# roots) plus probably -e as pl. marker]

Probable Sudanic semantic innovation: development of the meaning "thing" from its earlier indefinite pronominal sense "something." The plural pronouns of the West Jebel subgroup (Gaam, Aka, Molo, and Kelo) and of Kresh, from their differences in person marking and their isolated occurrence, must be understood as separately derived pronominal subsystems. In Gaam this base was extended to singular pronoun formtions as well.

411. *ɟìd "to perceive, sense (with ear or nose)"

Koman: GULE gid- "to hear"
CSud: PCS *ɟi "to smell"
CSud: BALESE ɔgi "to hear" | [CSud *V- pref. plus stem; Balese /g/ < PCS *ɟ]

Sah: KANURI gàrә "to inspect, watch; to wait for" | [stem plus probably form of NS *'y ess.-act.]

Astab: Taman: SUNGOR gil "to listen"
Astab: Nub: DONGOLAWI gijir "to listen to; to smell" | [partially redup. stem]

Kir-Abb: Surmic: SWSurmic *giro- "nose" | [stem plus NS *w n. deriv. suff. (aw > o)]

Rub: IK gid (gida-) "elephant's trunk" | [semantics: smell > nose, as in Surmic reflex: trunk is elephant's nose]

Semantics: For the overt linking of the two kinds of senses in a single word, see the Central Sudanic and the Dongolawi entries in particular.

412. *ɟî:t OR *ɟí:tʰ "grass stalk"

Koman: UDUK gùtʰ "two-years' unburnt growth of grass"
CSud: ECS *ɟi "sorghum"
Astab: PNub *gi:d "grass" (NOBIIN gìid)

Other possible reconstructions: *ɟî:t OR *ɟí:tʰ.

413. *ɟò "to bring"

Koman: UDUK gù "to bring (one thing)" | [< presumed *gow, stem plus NS *w punc.]

FOR ja- "to put"
Kir-Abb: GAAM gò- "to hold, include; to wear"
Rub: SOO oɟ "to put"

The reconstruction of short *o is required by both the derived verb roots 415 and 416.

414. *ɟòbâr OR *ɟòɓâr "crested crane (?)"

CSud: PCS *gɓo "sp. long-legged bird"
KUNAMA gabara "corvo reale"
Sah: KANURI gәvàrí "crested crane" | [stem plus NS *'y n. suff.]
FOR gùrbàl "stork" | [stem plus NS *l or *ḷ n. suff., with metathesis of *r and *B]

415. *ɟóh OR *ɟòh "to pick up" [root 413 plus NS *-uh ven.]

CSud: PCS *ɟɔ "to put up high"
KUNAMA gau- "to draw, as water" | [stem plus NS *w punc.]
Sah: KANURI gó "to take"
Astab: Taman: TAMA ga:y- "to lift" | [stem plus NS *'y ess.-act. (*go- plus *-a'y > *ga:y)]
Rub: SOO iɟɔ' "to take" | [*i- v. class pref. plus stem]

Possible Saharo-Sahelian innovation: shift of meaning in the unmodified form of the root to "to take" in general.

416. *ɟòn "to hold" [root 413 plus NS *n dur.]

CSud: PCS *ɟɔ "to claim possession of"
CSud: BALESE ɔgò "to catch in trap" | [CSud *V- pref. plus stem; BALESE /g/ < PCS *ɟ]
KUNAMA ganata "fist, paw" | [stem plus NS *tʰ n. suff.]
Sah: KANURI gәná "to put down" | [stem plus NS *-a dispunc.]
FOR jan- "to fetch"
Astab: Nub: DILING kon "to have" | [NS *ɟ > PNub *g > DILING k]
Kir-Abb: GAAM gòn- "to chase" | [semantics: "to catch" > "chase after (in order to catch)"]

Kir-Abb: Nil: WNil: OCOLO gon "to steal from under one's eyes"
Kir-Abb: Nil: WNil: NAATH gɔn "to hold or carry in hand"

417. *ɟop "to put around"

CSud: PCS *gbɔ "to fold, enfold, enclose"
KUNAMA gaburu- "to twist" | [stem plus NS *r iter.]
Astab: Nub: DONGOLAWI gobir "to surround" | [stem plus Nubian *r caus.]

Kir-Abb: Nil: WNil: OCOLO göp "to collar, tie rope around dog's neck"

418. *ɟor   "young domestic animal (heifer?)"

KUNAMA garma "sheep"   [stem plus NS *m n. suff.]

SONGAY gurmu "ewe lamb"   [stem plus NS *m n. suff. and *-u n. sing. (*gormu > /gurmu/]

Astab: Nub: NOBIIN gor "cow, calf"

Kir-Abb: Surmic: DM: DIDINGA golenit, PL. golen "young kid"   [stem plus NS *n n. suff.; NS *r > Surmic *R > DM *l]

The distribution of meanings seems better to favor "lamb, kid" as the original sense of this root. But the rest of the evidence of domestic animal nouns allows knowledge only of cattle to go back to the Northern Sudani stage of Nilo-Saharan history, signified here by the inclusion of the Kunama data—hence the queried proposal that the word originally named a heifer. Kunama and Songay unexpectedly also share a common innovation, a suffixation in *m, not present in the other reflexes.

419. *ɟɔ   "to move (toward)"

CSud: PCS *ɟɔ "to approach"

KUNAMA ga- "to go"   [stem plus NS *-a dispunc. is required to explain /ga-/ for expected *go-]

Sah: KANURI gá "to follow"

PRub *oɟ "to migrate"

420. *ɟɔɲ OR *ɟɔ:ɲ   "to loosen, make loose"

CSud: BALESE túgó "to unwind, untie"   [BALESE ʈ- intens. (NS *ʈ' iter. intens.) plus CSud *V- pref. plus stem; BALESE /g/ < PCS *ɟ]

KUNAMA goɲ- "to make soft, weak"

Kir-Abb: Nil: WNil: OCOLO gɔɲ "to loosen, untie, undo"

421. *ɟɔ́ŋg   "to cut (off)"

CSud: PCS *ɟɔ OR *gɔ "to cut"

Sah: KANURI gák "to skin, flay"

SONGAY génɟì "forked stick"   [stem plus NS *'y n. deriv. suff.; semantics: something split]

Astab: Nub: DONGOLAWI gag "to split, crack, slit"

Rub: SOO ɟoɟoʂ "to split"   [stem plus NS *ʂ caus. (?)]

Rub: IK góg- "to drive in (e.g., nail), cut an opening in a gourd with a knife"

Sahelian semantic innovation: shift of the meaning of the verb from "to cut (off)" to "to split."

422. *ɟú:ɟ   "to rub together"

Koman: UDUK àgùjè' "molar teeth"   [NS *a- attrib. n. pref. plus stem plus NS *-eh n. deriv. suff.; semantics: molars grind together in chewing]

Kir-Abb: GAAM gùùr- "to efface, rub, scrape off, scrub"

Kir-Abb: Nil: PWNil *gu:r "to grind grain" (OCOLO guur, JYANG gur)

PRub *ɟui'j "to shave" (SOO ɟú'j)

423. *ɟuɟ OR *ɟu:ɟ   "to take apart"

CSud: MM: LUGBARA ògù "aside, apart"   [CSud *V- pref. plus stem]

KUNAMA guša- "to fray, come untied, come unthreaded"   [stem plus NS *-a dispunc.]

Astab: Nub: DONGOLAWI gušš- "to break"

424. *ɟù:m   "owl"

CSud: PCS *ɟu "owl"

Kir-Abb: GAAM gùùm "owl"

Kir-Abb: Nil: PWNil *gum- "owl" (NAATH gumut, PL. gumuni; JYANG agumut)   [Jyang: NS *a- n. deriv. pref. plus stem plus *tʰ sing.; CVCVC structure of Naath and Jyang reflexes make them suspect as loanwords from another NS language]

425. *ɟùr OR *ɟūr   "dust"

KUNAMA guruda "fuzz, down, white powder that covers plant and fruit"   [stem plus NSud *ʈ n. suff.]

Astab: PNub *gur "earth" (NOBIIN gùr, DONGOLAWI gu:)

Kir-Abb: BERTHA gùr, PL. gúrì "field, pasture"

Kir-Abb: Nil: WNil: BURUN gurit "stone"   [stem plus NS *t sing. marker]

Eastern Sahelian semantic innovation: A shift of application of the root from "dust" to "earth, ground" is directly present in the Nubian attestations and is the implied intermediate shift explaining the reflexes in Bertha ("ground" > "piece of land," hence "field, pasture") and Nilotic ("earth" > "stone," something which is part of the earth or soil).

426. *ɟwàd   "to scratch"

KUNAMA gorgota "notched surface, roughness" (gorgoti- "to be notched, be rough, be rugged")   [stem plus NS *k intens. plus NS *tʰ n. suff.; v. < n.]

Astab: Taman: TAMA gorut- "to scratch"   [stem plus NS *tʰ cont.]

Astab: Nub: DILING kwar "to scratch"   [NS *ɟ > PNub *g > DILING k]

Kir-Abb: GAAM gèr- "to dig with fingers"

Kir-Abb: Nil: PNil *gwar "to scratch" (ENil: TESO -gwar "to scratch"; BARI gwar-ju "to sweep roughly"; PSNil *ŋwar "to scratch")   [for SNil *ŋ in this environment, see Commentary to Table 2.10, Nilotic rule 4]

427. *ɟwáθ OR *ɟwá:θ   "adult, grownup person"

Koman: UDUK gwásàn, gwáʈʰàn "males" (suppl. pl.)   [stem plus NS *n n. suff. (as pl.?)]

PRub *ɟwásat, PL. *ɟwas "woman"

428. *ɟwé:b OR *ɟwé:ɓ   "to burn (tr.)"

CSud: ECS *gɓwi "to burn"

SONGAY gòobéré "provoquer un incendie de case"   [stem plus NS *r iter. (as intens.?)]

429. *ɟwéɟ   "to go up"

CSud: PCS *ɟwe "to ascend, rise"

KUNAMA guri- "to spring, jump quickly"

Kir-Abb: BERTHA gú:ɗ- "to jump"

Kir-Abb: Nil: ENil: BARI gwóɗ-án "to stand"   [stem plus Bari incep.]

Kir-Abb: Nil: SNil: Kalenjin [*kwaʀ "to lift up":
　　LOAN (expected *kwet), from Koman (NS *Cwe
　　< *Cwa is a Koman sound shift) or Rub]
Rub: IK [ɟwarí-éd "up, above": LOAN (expected
　　*ɟweɗ-) from Koman (see SNil entry)]

Probable Northern Sudanic semantic innovation: A shift from ascension in general, as attested in Central Sudanic and possibly indirectly indicated for Koman in the Ik reflex, to a particular kind of upward movement, springing or jumping, is specifically required by the Kunama and Bertha reflexes of this root. The Bari form appears on the surface to be a counterindicator, but its present-day meaning may reflect wider areal semantic influences like those seen in the Ik borrowing.

430. *ɟwè:r　"to eat (hard or tough things)"

KUNAMA gurti- "to swallow with difficulty"　　　[stem plus NS *tʰ cont.]
Sah: KANURI gə̀r- "to eat (hard or tough things)"
Astab: Nub: DONGOLAWI goːr "to gnaw"
Kir-Abb: C.Jebel: AKA gurr- "to bite"
Kir-Abb: Nil: ENil: BARI gwɔrɔŋ, PL. gwuruŋit　　　[stem plus NS *ŋ n. suff.]
　　"wild beast, carnivore"
Rub: Wn Rub *ɟwer "to eat (of cattle)" (NYANG'I
　　gwer "to eat"; SOO ɟwe "to graze")

Apparent Eastern Sahelian semantic innovation: shift of focus of the verb to eating done by animals.

431. *ɟwé:ɲ　"to munch on"

SONGAY góɲ̀ "to swallow"
Kir-Abb: BERTHA (M) gé:n- "to taste"
Kir-Abb: Nil: PNil *gwɛ:ɲ "to gnaw" (ENil:　　　[for SNil *ŋ in this environment, see
　　MAASAI -gúény "to gnaw"; SNil: NANDI ŋeɲ　　　Commentary to Table 2.10, Nilotic
　　"to gnaw meat"; Kalenjin *ŋɛ:ɲ "saltlick")　　　rule 4]
Rub: SOO ɟwɛθ "to suck (of baby)"　　　[PRub < *ɟwɛɔs- regularly < pre-PRub
　　　　　　　　　　　　　　　　　　*ɟwɛns-, stem plus NS *s prog.]

Rub: IK [nyény- "to chew cartilage": LOAN from
　　SNil (PSNil *ŋéɲ- > nyény- by regular Ik palatali-
　　zation]

432. *ɟwì̂l OR *ɟwǐl　"to look at"

Koman: OPO gil- "to see"
KUNAMA gulli- "to look at"
FOR jagil- "to see"　　　　　　　　　　　[partially redup. stem; variant V probab-
　　　　　　　　　　　　　　　　　　　ly by conflating this root with 443]
SONGAY gùllù "to stare at, observe, look after"
Astab: Nub: DILING gel "to see"　　　　　　[occurrence of /g/ instead of /k/ here
　　　　　　　　　　　　　　　　　　　remains to be explained]

Kir-Abb: Nil: PWNil *gwɪl "to look at" (OCOLO
　　gwɪl "to see, spy"; NAATH gwɪl "to look for,
　　see, examine")
Kir-Abb: Nil: ENil: BARI gwʊlʊ-'ya "to recognize"

433. *ɟwór　"to puncture, pierce with a blade or point"

Koman: UDUK góórr "to catch fish with hook and
　　stick"
Koman: UDUK àgórá' "fish hook"　　　　　[NS *a- n. deriv. pref. plus stem plus
　　　　　　　　　　　　　　　　　　　NS *-ah n. suff.]

Koman: UDUK góórkō', àgóórkō' "large crack in　　　[(NS *a- n. pref. plus) stem plus NS
　　ground; lump of cotton soil"　　　　　　　　*k adj. suff. plus NS *-Vh n. deriv.
　　　　　　　　　　　　　　　　　　　　　　suff.]
FOR kóór, PL. kóórí "spear"　　　　　　　　　[NS *kʰ n. pref. plus stem (*kʰógór- >
　　　　　　　　　　　　　　　　　　　　　　/kóór-/]
SONGAY górú "to break into by puncturing"　　　[stem plus NS *-uh ven.]
Astab: Nub: Hill Nubian *kwor- "spear" (DILING
　　kworaɲ, KADARU kùàRáŋ)
Astab: Nub: NOBIIN góor- "to reap"
Kir-Abb: BERTHA gòr- "to sew"
Kir-Abb: NYIMANG gwɔr "to scratch"
Kir-Abb: Nyimang *g(w)ur- "horn" (NYIMANG　　　[semantics: thing that can pierce with its
　　*gurš-i, DINIK gwurt̪un)　　　　　　　　　　sharp point; Nyimang: stem plus NS
　　　　　　　　　　　　　　　　　　　　　　*s n. suff. (š /_i#); Dinik: stem plus
　　　　　　　　　　　　　　　　　　　　　　NS *t̪ and *n n. suff.]

Kir-Abb: NYIMANG [kwɔɾa ~ kwuɾa "spear":
　　LOAN < Hill Nubian (shows Hill Nubian sound
　　shift, *g > *k)]
Kir-Abb: PNil *gwor OR *gwoʀ "to scarify
　　(adolescent)" (WNil: NAATH gor "scarification";
　　ENil: LOTUKO gwar "to scarify"; TESO ei-
　　gworone "initiation ceremony")
Kir-Abb: Nil: ENil: BARI [gor, PL. goro "spear":　　　[possible LOAN (expected *g(w)ör)]
　　LOAN (expected *gör or *gwör)]
Kir-Abb: Nil: ENil: BARI gör-ja "to pass through"
　　(i.e., pierce through)
Kir-Abb: Nil: ENil: BARI gwörön-du "to scratch,　　　[stem plus NS *n dur.]
　　claw"
Kir-Abb: Nil: ENil: BARI [gɔrkɪn-ɪ "crack (n.)":　　　[stem plus *k element, perhaps *k adj
　　probable LOAN from Koman (expected g(w)ör-)]　　suff. as proposed for Uduk reflex,
　　　　　　　　　　　　　　　　　　　　　　plus NS *n n. suff.]

Sahelian semantic innovation: added specialized application of the verb in the meaning "to spear." For, Nubian, Nyimang, and Bari of Nilotic all have noun reflexes that mean "spear." That these are all preservations of a shared proto-Sahelian noun for that implement seems nevertheless improbable. The For and Nubian nouns show distinct derivational morphology and are best considered separate noun derivations; the Nyimang word is definitely a Hill Nubian loan; and the Bari form fails to show the expected vowel correspondence and may therefore be a loan in that language. Kir semantic innovation: shift from "to puncture (singly)" to "to scratch, puncture repeatedly" (as in scarification). A separate root *ɟwork- "crack" is suggested by reflexes in Uduk and Bari, but again the Bari shape may be a loan, most likely in that case from a Koman language.

434. *ɟwòrp　"to poke, prick" [root 433 plus NS *p extend.]
Koman: UDUK gòrrpʰō' "barbed spear"　　　　　[stem plus NS *-Vh n. deriv. suff.,
　　　　　　　　　　　　　　　　　　　　　　added since *p > UDUK pʰ /_#]
Sah: KANURI gùrùp "to poke with a stick"

435. *ɟwɔ̌:　"to call"
Koman: UDUK gwɔ̀ "language, word, thought"
Koman: UDUK gwày "name, song"　　　　　　　[stem plus NS *y n. deriv. suff.]
CSud: PCS *ɟʼu "to make a loud sound"
Sah: ZAGHAWA gú "to call"
Kjir-Abb: DINIK gwɔt̪-, gwut̪iri "to call"　　　　　[stem plus NSud *t̪ caus. (as intens.?)
　　　　　　　　　　　　　　　　　　　　　　(plus NS *r iter.)]
Kir-Abb: Nil: WNil: OCOLO gwäy "to bark"
Kir-Abb: Nil: ENil: BARI gwɔ-ja "to dance, drill"　　　[stem plus NS *'y ess.-act.]

Kir-Abb: Nil: ENil: BARI gwö-ju "to bark (of dog)"

436. *ɠwɔ́ɲ   "to observe"
CSud: PCS *ɠwɔ "to notice, be aware of"
KUNAMA goŋe- "to look, observe"   [example of occasional KUNAMA ŋ ~ ɲ alternance /V_]

SONGAY gùnè "to look at"   [stem plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)]

Astab: Taman: SUNGOR gon "to see"
Astab: Nub: DONGOLAWI guːnc- "to look (at)"   [stem plus NS *ṣ caus.]
Astab: Nub: NOBIIN gúuny- "to look"
Kir-Abb: Nil: ENil: LOTUKO -góɲùnà "to see"   [stem plus ENil ven.]
Kir-Abb: Nil: SNil: Kalenjin *kaɲ "to wait"   [PSNil *kɔɲ; semantics: "to watch" > "to wait"]

Rub: IK gon- "to visit, go to check, search for lice"   [underlying *goɲ-n-, stem plus NS *n dur., > *gon- explains final C and lowering of stem tone]

437. *aɠa   "I" [NS *ah 1st person pron. (root 1583) plus dem. stem in *ɠ (root 410)]
Koman: Sn Koman *aga "I" (OPO aga, KWAMA ga)
Koman: KOMO -g- << 1st person sing. subj. marker of v. >>
SONGAY agey "I (emphatic)"   [stem plus NS *y n. suff.]
Astab: NARA aga "I"
Astab: NARA agga "we   [stem with pl. by C gemin.]
AStab: Nub: MIDOB aŋŋa "we"   [*ag-ŋa, stem plus *ŋ pl. suff. (general pattern in Midob pl. pron.]

Kir-Abb: Nyimang: DINIK ago "we"   [stem plus *-we pl. suff.? See Chap. 8]
Kir-Abb: Surmic: S.Surmic *age "we"   [stem plus *-we pl. suff.? See Chap. 8]
PRub *ɠin "we (incl.)"   [stem plus *n pl. suff.]
Rub: IK ŋ́gw "we (excl.)"   [*N-g-o, IK *N- pref. of all except 2nd person pron. (< NS *ŋga topic pron. marker, root 486), plus stem plus pl. suff. as in Dinik and Surmic (*-we)]

A probable Eastern Sahelian innovation, a plural *agwe "we" (originally "we (emphatic/topic)"), can be proposed to explain the Dinik, Surmic, and Ik forms. The Midob and Nara reflexes appear to be separate formations of "we" from the singular pronoun.

438. *aɠw   "between, among, within"
Koman: GULE agge "near"
CSud: PCS *ɠɔ "in between, amid"
Astab: NARA go "at, for, in" (postp.)
Kir-Abb: Nil: WNil: OCOLO gway "insides of gourd   [stem plus NS *y n. suff.] or melon"
Rub: Wn Rub *aɠw "under"

439. *iɠwe   "you (pl.)" [see notes as end of this entry for derivation]
Astab: NARA -ge << 2nd person pl. marker of v. >>
Astab: Nub: MIDOB uŋŋu "you (pl.)"   [stem (*ug- < *igw-) plus *-ŋV pl. suff. of Midob pl. pron. (as in root 437)]
Kir-Abb: Nyimang: DINIK igo, igwo "you (pl.)"
Kir-Abb: Surmic *ige "you (pl.)"

This root is an apparent Eastern Sahelian innovation, derived in tandem with Eastern Sahelian *agwe "we" (found under root 437 above) by substituting the second person pronomial element *i of Nilo-Saharan (root 1593) for *a- of NS *aɠ- "I," with the addition, as in *agwe, of the *-we plural suffix (see Chapter 8 for further discussion).

PROTO-NILO-SAHARAN STEM-INITIAL *g

440. *gà   "immature, young"
Sah: KANURI gàná "small"   [stem plus NS *n modif.. suff. plus NS *-Vh n./adj. deriv. suff.]
SONGAY gènì "raw"   [stem plus NS *n modif. suff.]
Astab: Nub: DONGOLAWI jagad "weak"   [stem plus NSud *ṭ or *ṭʰ n./adj. suff., partially redup.]
Kir-Abb: BERTHA [gàdì, PL. gèːdí "child": LOAN (expected *gaθ-)]   [stem plus NS *tʰ n. suff.]
Kir-Abb: Surmic: DM: LARIM ága "easy"   [NS *a- n./adj. deriv. pref. plus stem; semantics: "young" > "light(weight)" > "light, easy"; for similar linking of "light" and "easy," cf. GERMAN leicht]
Kir-Abb: Nil: WNil: NAATH gat "child"   [stem plus NS *tʰ n. suff.]

Possible Eastern Sahelian or Kir-Abbaian semantic and morphological innovation: formation of noun "child" by addition of Nilo-Saharan noun suffix in *tʰ to root. The Dongolawi reflex could possibly be an adjectival derivation (by partial reduplication) from such a noun.

441. *gab OR *gaɓ   "to argue, quarrel"
CSud: ECS *gba "dispute, argument"
Astab: Nub: DONGOLAWI jaww- "to brawl, quarrel noisily"

442. *gàːb OR *gàːɓ OR *gàːp OR *gàːp'   "to grip, hold in the hand"
SONGAY gàabù "to have, hold, possess"   [stem plus NS *-uh ven.]
Astab: Nub: DONGOLAWI jaːbɛ "to touch, feel, handle"   [stem plus NS *'y ess.-act. (> extend. action)]
Kir-Abb: Nil: WNil: OCOLO gäp "to take, give or lend something that belongs to another"

443. *gáːl   "to watch, keep in sight"
CSud: PCS *ga "to perceive"
KUNAMA galla- "to look"
KUNAMA galaŋa- "to look up high"
Sah: KANURI gàl "to measure"
FOR jagil- "to see"   [stem plus NS *ŋ punc.]

Astab: Taman: TAMA gal "to guard"   [see For entry in root 432 above for explanation of this outcome]
Kir-Abb: Nil: WNil: NAATH gɔl "to dally"
Kir-Abb: Nil: WNil: TESO -galior "to protect"   [semantics: "watch" > "wait" > "dally"]
                                          [stem plus Ateker "definite" marker plus Teso itive (-oor)]
Kir-Abb: Nil: WNil: BARI ga-'yu "to look for"   [regular BARI deletion of *l /V_-'yV]

444. *gὲ   "to obtain, acquire (in return for something else)"

CSud: PCS *gɛ "to buy"
KUNAMA ge- "to receive, obtain, gain, benefit"
Sah: KANURI gànt- "to acquire" (H)
                                    [stem plus NS *ŋ punc. plus NS *tʰ cont.]

Astab: NARA gan "possession, belonging"   [stem plus NS *n n. suff.]
Astab: Nub: DONGOLAWI jaːn- "to buy, sell, trade"   [stem plus NS *n dur. (shape *gɛ-an- would explain V length)]

Rub: IK eg- "to put somewhere"

The Saharan and Astaboran subgroups each show an innovated form that adds the Nilo-Saharan durative extension in *n to the stem.

445. *gὲp   "edge, rim"

Koman: UDUK gàpʰ "bank of river"
CSud: PCS *kpɛ "edge"
KUNAMA agaba "umbilical recess"   [NS *a- n. deriv. pref. plus stem; presumed V assim., *ageba > *agaba)
SONGAY jèbù "bank, bank of river"   [stem plus NS *-uh n. deriv. suff.]
Rub: SOO agɛb "bank (of stream); end"   [NS *a- n. deriv. pref. plus stem]

The different morphology of the Songay and Soo reflexes suggests that the application of this root to the edge of a stream may have arisen separately in each of them and in Uduk.

446. *giːb OR *giːɓ   "to make flat, level"

CSud: MM: LUGBARA gbítígbítí "even, regular, smooth"   [stem *gbi plus CSud *-tV modif. suff. (NS *tʰ), redup.]
KUNAMA gibila "strip of cultivable land"   [stem plus NS *l or *l̥ n. suff.; semantics: Kunama country is mountainous, and relatively flat bits of land are those best suited for cultivation]
Sah: KANURI gíbgíb "ideophone of shortness of someone's neck"   [redup. stem; semantics: "flat" > "low" > "short"; [g] for normal [j] /_i in Kanuri probably reflects irregularity of sound shifts in ideophones rather than borrowing here]
Astab: Nub: DONGOLAWI jibid "platform (of waterwheel)"   [stem plus NSud *l̥ n. suff.]
Kir-Abb: Nil: WNil: OCOLO gip "to make even, level"

447. *gȋd   "to recline, repose"

KUNAMA gitti-, giddi- "to be slothful, lazy, sluggish"   [*girti-, stem plus NS *tʰ cont.]
Sah: KANURI gòràk "to lean against"   [stem plus NS *k caus.]
SONGAY jírbì "to sleep"   [stem plus NS *p extend.]
Astab: Nub: DILING jir "to lie, sleep"
Kir-Abb: Nil: ENil: MAASAI -gırá "to be quiet"   [stem plus ENil *-a neut.-pass.]
Kir-Abb: Nil: SNil: Kalenjin *ŋır "to incline"

448. *gōb OR *gōɓ   "pole, stick, wood"

CSud: PCS *gbɔ "tree, bush, wood"
SONGAY gòbù "stick"
Astab: Nub: DONGOLAWI joww- "tree"

449. *gɔ́ŋ   "to bend"

Koman: UDUK àgòŋ "fence"   [NS *a- n. attrib. pref. plus stem; semantics: a fence goes ROUND whatever it encloses]
CSud: PCS *gɔ "to bend"
KUNAMA gaŋata-, gataŋa- "to affirm by moving head backwards"   [stem plus NS *tʰ cont., i.e., bend head several times]
SONGAY góŋgóŋ "to be bent, to turn around"   [redup. stem as iter.]
Kir-Abb: PNil *goŋ "to bend" (WNil: JYANG goŋ-goŋ "hump-backed"; OCOLO goŋ "to stoop over, bend over"; ENil: TESO -goŋakin "to lean upon")   [Teso: stem plus Ateker benef.]

450. *goŋkʰ   "to heat"

Koman: Gumuz *gok- "warm"
KUNAMA [gongoja "burn, scald (n.)": LOAN (expected *gang-)]   [*gongoda, stem plus NSud *t̥ n. suff. (Kunama *d often > j or j/d altern.]
Astab: Nub: DONGOLAWI jug "to catch fire, ignite"
Astab: Nub: DONGOLAWI jugri "hot"   [stem plus NS *r modif. affix]
Kir-Abb: DINIK [jukárὲ "warm, hot": LOAN < Nubian (*g > PNub *j /#_, > Dinik /g/)]   [stem plus NS *r modif. affix, as in Nubian]

451. *gor OR *god OR *goɗ   "left (hand)"

CSud: PCS *go "left (hand)"
FOR goro "left (hand)"

452. *gòːr   "to step"

KUNAMA gurbu-, garba- "to make slow rhythmic steps mimicking person as in a dance"   [stem plus NS *p extend.; 2nd shape: alternate intermediate development, *V: > V /#C_CC]
Sah: KANURI gòrnás "to trample, tread, and crush" (H)   [stem plus NS *n dur. or *ɲ extend. plus NS *t' iter. intens.]
SONGAY gòrò-gòròfò "to walk dragging the feet"   [redupl stem as iter. plus NS *pʰ extend. intens.]
SONGAY gòrfì-gòrfì "marcher à petits pas rapides"   [stem plus NS *pʰ extend. intens. plus NS *'y ess.-act., redup. as iter.]
Rub: IK gor- "to go, step over (something)"
Rub: IK gɔrɪgɔr "hoof"   [redup. stem]

453. *gɔ́ŋg   "to swell up"

CSud: PCS *ngo "to be(come) thick, fat"
KUNAMA gogoma "round"   [stem plus NS *m adj. affix]
Sah: KANURI gàk "to produce new leaves"   [stem plus NS *kʰ iter.]
Astab: Taman: TAMA gaŋ- "to fill"
Astab: Nub: DONGOLAWI jaŋg- "to get full; to fill"
Kir-Abb: Nil: WNil: OCOLO goŋ "huge, enormous"

Western Astaboran semantic innovation: shift from swelling itself to an action that can be manifested as swelling, to become full.

454. *gȕp   "to throw"

CSud: PCS *kpu "to throw"
Sah: KANURI gàp "to throw"
Kir-Abb: Nil: ENil: BARI gub-ba "to throw"

455. *gwáh "male"
Koman: UDUK gwáN- "fathers, elders, chief men" (in compound words)
 [stem plus epenthetic nasal of regular Uduk compound formation, or else borrowing of WNil word]

CSud: PCS *gɔ "male"
SONGAY gù "stallion"
Kir-Abb: PNil *gwaːn "father" (WNil: NAATH gwan "father"; PSNil *kwaːn "father (not one's own)")
 [stem plus NS *n n. suff.]

456. *gwàːp "to stay, remain"
CSud: PCS *kpa "to remain, stay behind"
KUNAMA gubi- "to wait (for)"
Sah: KANURI gàp "to be left, remain"
Astab: Nub: DONGOLAWI jobbɛ "to wait, stay"
 [stem plus NS *'y ess.-act.; expected *joːbbɛ, however?]

457. *gwáph "to scrape with one's fingers or nails"
Koman: UDUK gwáphīʼ "claw, hoof; to claw"
 [stem plus NS *-ih n. deriv. suff.; v. by back-formation < n.]

Koman: UDUK ágwáphīʼ "nail, claw"
 [NS *a- n. deriv. pref. plus previous Uduk n.]

CSud: PCS *kpɔ "finger, toe" (BALESE "claws")
SONGAY gófì "to crush between nails of the two thumbs"
 [stem plus NS *-i itive]
Kir-Abb: Nil: WNil: OCOLO gɔ̈p "to scrape (out), as food from bowl"

The Koman and Central Sudanic nouns appear from their different derivational morphology to be separate formations from this verb.

458. *gwì "to rise, swell, increase in height or size"
CSud: PCS *gwi "much, very"
KUNAMA gu- "to grow, swell"
KUNAMA guguma "dense, deep"
 [redup. stem plus NS *m adj. affix]
Sah: ZAGHAWA guw-n "to stand up"
 [stem plus NS *w punc. (plus Zaghawa v. suff. -n)]

SONGAY gù "heap, pile"
Maban: MABA guiok "cow's hump"
 [stem plus NS *w n. deriv. suff. (plus MABA -k n. sing. marker)]

Astab: Taman: TAMA gì- "to rise"
Astab: Taman: TAMA gìːŋ- "to hang"
 [stem plus NS *ŋ punc.]
Kir-Abb: Nil: ENil: BARI gwu-jö "to enlarge (holes)"
Rub: PRub *gwi- "bird" (SOO gwik "bird"; IK gwa (gwaa-) "bird (coll.)")
 [semantics: "rise" > "fly," hence n. "bird"; SOO: stem plus NS *k singul. (because birds commonly occur in groups); IK: < *gwia, stem plus NS *a pl. as coll.]

459. *gwìnɗ "to toss"
CSud: PCS *gwi "to fling"
Sah: KANURI gàzèk "to shake to mix up in hand"
 [stem plus NS *kh iter.]
SONGAY jíndów "to throw in front of one without aiming, throw out"
 [stem plus NS *w punc.]

Kir-Abb: Nil: ENil: BARI [gwutöd-du kak "to throw down with one stroke" (kak "down"): LOAN from CSud (expected *gwur-)]
 [stem *gwi- (shape borrowed from CSud with regular Bari shift, *gwi > *gwu) plus BARI *-töt singul.]
Rub: IK góóz- "to distribute by throwing"
 [IK /z/ < PRub *'j]

460. *gwoph OR *gwopʼ "chunk of meat with bone, joint of meat"
CSud: PCS *kpɔ "bone"
CSud: ECS *kpɔrɔ "joint (of body)"
 [stem plus CSud *-rV n. suff. (NS *r)]
KUNAMA gufa "chunk of meat with bone"
Kir-Abb: Nil: WNil: Jyang-Naath *gwop "body (of person)" (NAATH gwop "skin of person"; JYANG guop "body")
Kir-Abb: Nil: ENil: BARI gober "hide (of animal)"
 [stem plus NS *r n. suff.; possible LOAN (expected *g(w)öb-?)]

Kir-Abb: Nil: SNil [*kupeːs "thigh": probable LOAN from Rub]
 [stem plus NS *s or *ṣ n. suff.]
Rub: IK [gubes "thigh": LOAN (expected *guf- or *guɓ-) from unidentified language (Koman?)]
 [stem plus NS *s or *ṣ n. suff.

461. *gwɔ̀ːr "to drive away"
KUNAMA gur- "to pursue, drive away, exile"
Sah: KANURI gə̀r "to raid"
FOR jurr- "to drive out"
SONGAY gàarèy "to chase, pursue, dismiss"
 [stem plus NS *'y ess.-act.]
Astab: Nub: DILING jorš-i "to run"
 [stem plus NS *s prog. (as intr.)]
Kir-Abb: Nil: WNil: NAATH gwɔr "to chase, pursue"

PROTO-NILO-SAHARAN STEM-INITIAL *g or *ɗ (*G)

462. *gáh OR *ɗáh "to not do"
Koman: UDUK gáʼ "to abstain from; to fast"
CSud: PCS *ga OR *ɗa "to refuse"
FOR jey- "to keep off"
 [stem plus NS *'y ess.-act.]
SONGAY gàaỳ "to stop, forbid, prohibit"
 [stem plus NS *'y ess.-act.]
Kir-Abb: GAAM gə̂id- "to fetter"
 [stem (plus NS *'y ess.-act.?) plus NS *ṭ caus.]

Kir-Abb: Nil: WNil: OCOLO gaŋ "to avoid"
 [stem plus NS *ŋ punc.]
Kir-Abb: Nil: PENil *-ga "to shield, protect from" (TESO ai-ga "to shield, guard from"; BARI ga-ju "to parry, protect, shield")
Kir-Abb: Nil: ENil: BARI gan "to fail, not succeed"
 [stem plus NS *n dur.]
Rub: IK gaan- "to be bad"
 [stem plus NS *n modif. suff., with v. < earlier adj.]

An extended verb of possible proto-Sahelian provenance *Gah-a'y, consisting of the stem plus *'y essive-active and bearing some such meaning as "stop from doing," is attested in the For and Songay reflexes. The Gaam reflex may possibly contain the same extension, but the rest of its derivational morphology indicates a separate derivational history for it.

463. *gáːh OR *ɗáːh "to catch fire"
Sah: KANURI gá "to catch fire"

FOR jaas- "to boil (tr.)"

SONGAY gáay "to shine brightly, gleam" [stem plus NS *ş caus.]

[stem plus NS *'y ess.-act.]

Kir-Abb: Surmic: SESurmic: ME'EN giam- "to burn (tr.)" [stem plus NS *'y ess.-act. plus NS *m iter. concis. (< *ga'yam-)]

Kir-Abb: Nil: WNil: NAATH gɛt "to bake, fry" [stem plus NS *'y ess.-act. plus NS *tʰ cont. (gɛt < *ga-'y-t)]

Rub: IK [gam- "to kindle": LOAN apparently from Surmic (expected Ik shape *gazim-?)] [see Me'en entry for structure]

Trans-Sahel morphological innovation: derivation of shape *ga'y, stem plus Nilo-Saharan *'y essive-active extension, is attested in all but the Saharan and For reflexes of this root.

464. *gàːl OR *ɟàːl   "to rise, increase (in longitudinal dimension)"

Koman: UDUK gàlàl "to enlarge" [partially redup. stem as extend.]

CSud: PCS *ga OR *ɟa "to rise, revive"

KUNAMA gala- "to grow; to go up" [this reflex may conflate two NS roots, this one and 490]

KUNAMA agalla "tall, long" [NS *a- n./adj. deriv. pref. plus stem]

Sah: KANURI gàl "to buy quantities" (H)

Kir-Abb: GAAM gàāl- "to be far, be long"

Kir-Abb: Nil: ENil: BARI lʊgalaŋ "broad, wide" [Bari *IV- adj. forming pref. (NS *l) plus stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: ENil: BARI tʊgalaŋ-gu "to broaden" [ENil *t- caus. pref. (NS *t̪) as denom. plus Bari adj. stem preceding]

465. *gapʰ OR *ɟapʰ   "shoulder"

Sah: KANURI ŋgáfánà "shoulder" [stem plus NS *n n. suff.; /ŋg/ for expected *g remains to be explained, however]

Astab: Taman: TAMA gufuruŋɔt, PL. gufuruŋe "shoulder" [stem plus NS *r and *ŋ n. suff. (*gafuruŋ-, with regressive V assim.)]

Kir-Abb: Surmic: DM: LARIM gaf "shoulder"

466. *gɨ́ɲ OR *ɟɨ́ɲ   "to be covered, cover oneself"

CSud: ECS *gi OR *ɟi "to be covered"

KUNAMA giɲo- "to cover oneself"

SONGAY jìŋgám̀ "mussel, shellfish" [stem plus NS *k caus. or adj. suff. plus NS *m n. suff.; semantics: covering (n.) > particular kind of covering, a shell > creature having such a shell]

467. *gɨ́r OR *ɟɨ́r   "to scratch into"

KUNAMA -gir- "to mark, write, etch"

KUNAMA gira uga "stone stiletto" (uga "stone")

KUNAMA giršu- "to scratch, wound skin, disfigure; to point" [stem plus NS *θ intens.]

Astab: Taman: TAMA giriːt "thorn" [stem plus NS *tʰ n. suff.]

Kir-Abb: GAAM jírd- "to grind" [stem plus NS *tʰ cont.]

Kir-Abb: Nil: PENil *-gɪr "to scratch into" (TESO aɪgɪr "to scratch into"; BARI gɪr "to cut a crooked line; wipe a dish," gɪgɪr "to engrave"; MAASAI ɪgɪr "to write")

468. *gòː OR *ɟòː OR *gòːh OR *ɟòːh   "to burn (intr.), shine"

CSud: PCS *gu OR *ɟu "to burn, shine"

Sah: KANURI gùt "to warm in sun" [stem plus NSud *t̪ caus.]

Kir-Abb: GAAM gòòn- "to shine" [stem plus NS *n dur.]

Kir-Abb: C.Jebel *aguwa "moon" (AKA, MOLO aguwa, KELO aʔuwa) [NS *a- n. deriv. pref. plus stem plus NS *-ah n. suff.]

Kir-Abb: Surmic: S.Surmic *go: "fire"

469. *gòl OR *ɟòl   "to stagger, stumble"

Koman: UDUK gòl "to stumble"

CSud: BALEDHA gŏ "to crawl, go on all fours"

SONGAY gòllèy-gòllèy "marche d'une manière déhanchée" (insult) [stem plus NS *y n. suff., redup. as iter.]

Kir-Abb: Nil: ENil: TESO -gogol "to trip up" [partially redup. stem as intens.]

Kir-Abb: Nil: ENil: BARI gɔ-'ya "to stoop (the back a little forward)" [regular Bari deletion of *l /V_'yV]

470. *Gōnd OR *Gont'   "to do secretly"

SONGAY gùndù "to speak in secret on account of a plot; secret, plot" [stem plus NS *-uh n. deriv. suff.; v. by back-formation < n.]

Kir-Abb: Nil: WNil: OCOLO gɔt "secretly"

471. *Gɔp OR *Gɔb OR *Gɔɓ   "breastbone"

CSud: PCS *gbɔ OR *gɓɔ "ribcage"

KUNAMA goba "dewlap; throat"

Kir-Abb: Nil: ENil: MAASAI ol-goo "chest" [regular Maa shift: *B > Ø /Co_o]

Other possible reconstructions: *Gɔːp or *Gɔːb or *Gɔːɓ.

472. *Gūb OR *Gūɓ   "to tighten, make fast"

CSud: PCS *gbu "to seize, catch, make fast"

KUNAMA gubi- "to be tight, narrow"

Kir-Abb: GAAM gūì- "to tie" [stem plus NS *'y ess.-act. (> Gaam *-ij- -> [-i-] in this environment)]

Other possible reconstructions: *Gūːb or *Gūːɓ.

473. *gúŋk' OR *ɟúŋk'   "island"

SONGAY gúŋgù "island"

Kir-Abb: Nil: WNil: JYANG guk "island"

474. *gúːr OR *ɟúːr   "to beat"

Sah: KANURI gúr "to whip, flog, cane"

Kir-Abb: Nil: WNil: OCOLO gur "to pound, drive"

Rub: IK gúr (gúró-) "heart" [stem plus NS *w n. suff.; semantics: "to beat (intr.)" > organ that beats]

Other possible reconstructions: *gūːr or *ɟūːr.

475. *Gúːs OR *Gúːθ   "to be deep"

SONGAY gúusù "to be deep"

Kir-Abb: Nil: ENil: MAASAI -gút "to be deep"

476. *gwàḍ OR *ɠwàḍ   "to be angry with"

CSud: PCS *gwɔ OR *ɠwɔ "to fight"

[probable *gwa-w, stem plus NS *w punc.]

Sah: KANURI gàzáp "to annoy, irritate" (H)

[stem plus NS *p extend.]

Kir-Abb: Nil: WNil: NAATH gwac- "to be cross at each other"

477. *gwàŋk OR *ɠwàŋk   "crust, rind"

Koman: Sn Koman *gwaŋk "bark" (KOMO gwaŋgi, KWAMA goŋk-)

CSud: PCS *ga OR *ɠa "crust, shell"

[pre-CSud V lengthening with deletion of *NC, hence pre-CSud *Gwa:, which > PCS *Ga]

Sah: KANURI gaŋgáu "dry hide of cow"

[stem plus NS *w n. suff.]

Kir-Abb: C.Jebel: MOLO [gǝga "bark": LOAN (expected *gVŋ-)]

Kir-Abb: Surmic: S.Surmic: KWEGU gwɔɲi "bark"

Rub: IK gokóróm "spine; edge, ridge, cliff"

[stem *gok- plus NS *r, *m n. suff.; semantics: hard crust > ground that has a hard, rough surface; spine < sense "edge, ridge"]

478. *gwá:θ OR *ɠwá:θ   "to scratch or scrape (surface)"

CSud: PCS *gwa OR *ɠwa "to dig up"

[semantics: to scrape the ground with a hoe or digging stick]

SONGAY gàasù "to scratch ground"

[stem plus NS *-uh ven.]

Kir-Abb: Nil: WNil: NAATH gwaṭ "to remove scales from fish"

Rub: IK gwas (gwasá-) "stone, grindstone"

[stem plus NS *-Vh n. suff.; semantics: "scrape" > "grind" > "grindstone" > "stone, in general"]

479. *gwe:d OR *ɠwe:d   "to look for, seek"

CSud: PCS *gwi OR *ɠwi "to desire"

KUNAMA gurfu-, guffu- "to find out, feel, search"

[stem plus NS *pʰ extend. intens.]

Kir-Abb: Nil: WNil: OCOLO gwir "to look at closely, carefully"

[expected *gwer (OCOLO /i/ normally < *i:)? But may be example of *e/*i stem-V alternance where *i alternant has intens. effect: see root 126]

Kir-Abb: Nil: ENil: BARI gwör-ju "to observe"

Kir-Abb: Nil: SNil: DATOGA ŋwe:r-sin "to look at"

[stem plus Datoga applic.]

480. *gwèḽ OR *ɠwèḽ   "to gabble, chatter, babble"

Koman: UDUK gwàlíš "to whistle"

[stem plus NS *ṣ ext. (caus. in other NS)]

KUNAMA golo- "to chatter"

KUNAMA gola- "to groan"

[stem plus NS *-a dispunc.?]

Sah: KANURI gàlàgàlà "to shout non-stop praises"

[redup. stem as iter. plus NS *-a dispunc.]

Kir-Abb: GAAM gǝ́ḽ "foolishness, simple-mindedness"

[stem plus NS *-ih n./adj. deriv. suff.]

Kir-Abb: GAAM gǝ́ḽ "foolish"

[stem plus NS *'y n./adj. suff.? Tone switch needs further explanation]

Kir-Abb: Nil: WNil: NAATH gwɛl gwɛl "to talk mixed language"

[redup. stem as iter.]

Kir-Abb: Nil: SNil: DATOGA [*ŋwɛl "Freude": LOAN (expected *ŋwɛš) probably from unrecorded Rub reflex (NS *ḽ > PRub *l)]

[borrowed before regular rule: pre-PSNil *gw > PSNil *ŋw /_VS, where S = sonorant]

481. *gwé:s OR *ɠwé:s   "to scratch"

Koman: UDUK gwàs "cicatrice"

CSud: PCS *gwe OR *ɠwe "to scratch, scrape, rub"

Kir-Abb: PNil *gwɛt "to scratch" (PWNil *gwɛt "to scratch"; ENil: MAASAI -gúét "to whittle"; TESO -gwetun "to strike match"; BARI gwet "to tap with fingers")

[Teso: stem plus Ateker ven.]

482. *Gwi: OR *Gwi:h   "rain"

CSud: PCS *gi OR *ɠi "water"

CSud: ECS *giru OR *ɠiru "wet"

[stem plus CSud *-ru adj. suff. (NS *r)]

Saharan *gwiyay "plentiful rain" (ZAGHAWA ge, gei, BERTI gi "rain season"; KANURI gúyáa "ideophone of a large quantity of water")

[stem plus NS *y n. suff.]

Maban: MABA guïok, PL. guïo "fog"

[stem plus probably Sahelian pl. in *o; semantics: "rain" > "cloud" > "fog"]

Kir-Abb: Surmic: SESurmic *gwiɔ "rain" (MURSI gwiyo, KWEGU gwɔt)

[stem plus *-o pl. suff. (as mass pl.); Kwegu: SWSurmic root plus NS *tʰ n. suff.]

Kir-Abb: Nil: WNil: NAATH gwi "hail, ice"

483. *gwí:ḽ OR *ɠwí:ḽ   "to cloud over, become dark"

Koman: UDUK gúɗùɗ, gúɗágùɗ "dark"

[adj. by partially redup. stem and by redup. stem]

Koman: GULE agud "cloud"

[NS *a- n. deriv. pref. plus stem]

CSud: WCSud: KRESH -gu "evening"

KUNAMA gululo- "to become dark, cloud up"

[partially redup. stem as extend.]

Sah: ZAGHAWA gilli "night"

[stem plus NS *-Vh n. deriv. suff.]

FOR juul- "to hide"

Kir-Abb: BERTHA àgú:rù "cloud"

[NS *a- n. deriv. pref. plus stem]

Rub: IK [gid "cloud": LOAN from extinct Western Koman language (/d/ for expected *ḽ)]

[NS *ḽ > proto-W'n Koman *ḍ (> Uduk ɗ /_#) and *ḍ > PRub *d /V_]

Rub: IK [góło "cloud, white, appearing after rains": LOAN (expected *gwiḽ-) from unknown source]

Gule and Bertha reflexes most likely represent an old areal spread of a word for "cloud" by borrowing rather than a proto-Nilo-Saharan term, because the two languages were spoken for millennia in adjacent or nearly adjacent areas.

484. *gwínd OR *ɠwínd   "waist"

CSud: ECS *gwi OR *ɠwi "tail"

SONGAY gúndè "belly"

Maban: MABA gindrim "loins"

Kir-Abb: BERTHA gùndì "back"

[stem plus NS *r and *m n. suff.]

Kir-Abb: Nil: ENil: BARI gwɪrɪ', PL. gwɪrɪlɛ "vertebral column"

[stem plus NS *l n. suff. (regular Bari *ḽ > ' /V_#)]

Rub: Wn Rub *gud, *guɗ, *ɠud, or *ɠuɗ "navel"
[data for this reconstruction come from Heine 1974, in which the distinction of d/ɗ and g/ɠ were not marked]

Kir-Abbaian semantic innovation: shift from "waist" to "back," probably via a shared intermediate shift to "small of the back."

485. *gwò:ɖ OR *ɠwò:ɖ "to be(come) low, lower oneself"

Koman: UDUK gòcʰór "knee joint"
[stem plus NS *r n. suff., added since Koman *j > UDUK cʰ /_#; semantics: joint for lowering oneself by kneeling]

CSud: PCS *gu OR *ɠu "to sink, become low"
KUNAMA gušinana "drowsiness"
[stem plus NS *n dur. plus NS *n n. suff.; semantics: "lower oneself" > "lie down" > "sleep, drowse"]

Sah: KANURI gùzùgùzù "to knock down from above"
[stem plus NS *-uh ven., redup. as intens.]

PROTO-NILO-SAHARAN STEM-INITIAL *ŋg

486. *ŋgá << demonstrative of topic >>

CSud: PCS *nga "then" (in future)
CSud: WCSud *nga- << verbal noun prefix; abstract noun forming prefix >>
Sah: KANURI ŋgàmà "why?"
[stem plus NS *ma interrog. root (98)]
Sah: KANURI ŋgáí "thus"
[stem plus probably NS *yi "this referred to" (root 1468)]

SONGAY ŋgà "he, she, it (emphatic)"
[Vŋgá-à, stem plus SONGAY à "he, she, it" (< NS *εh, root 1588)]

SONGAY ŋgéỳ "they (emphatic)"
[Vŋga-ì, stem plus SONGAY ì "they" (see root 1493)]

SONGAY -Vŋ IN íriŋ "we (emph.)" AND óròŋ "you (pl. emph.)"
[see roots 780 and 1403 for the two pronomial roots involved here]

Maban: MABA -aŋ << suffix forming emphatic pronouns >>

Astab: NARA ŋa "you (sing.)"
[NS *i "you (sing.)" (root 1600) plus stem]

Kir-Abb: C.Jebel: AKA iiŋ "you (sing.)"
[structure as in Nara reflex]
Kir-Abb: C.Jebel: AKA əŋ, MOLO ɔŋ, KELO əŋ "I"
[NS *ah 1st person root (1583) plus stem]

Kir-Abb: BERTHA ŋgo "you (sing.)"
[< *ŋga-u, stem plus NS 2nd person root *u (1403)]

Kir-Abb: BERTHA ŋine "she, he, it"
[stem plus NS *3rd person sing. pron. seen also in SNil (see under root 1588); *ŋg > ŋ /_VN in Bertha)]

Kir-Abb: NYIMANG -ŋáŋà "any(one)"
[redup. Stem]
Kir-Abb: proto-Daju *-ŋga IN *anaŋga/*iniŋga "I"/"you (sing)"
["I": ESah root *ane:, *ani: "I" plus stem (see also root 1583); "you (sing.)": NS *íní "you (sing.)" (root 278) plus stem]

Kir-Abb: proto-Daju *ŋgo "you (pl.)"
[pre-Daju *ŋga-u, stem plus NS *u "you (pl.)" (root 1403); same structure as in Bertha "you (sing.)" above]

Kir-Abb: Nil: PNil *nɪŋε "he, she, it" (ENil *nɪŋε; SNil: Datoga *niɲi)
[derivation as in Bertha (but with nasal metathesis); Datoga: progressive V height assim.; see also root 1590]

Kir-Abb: Nil: PSNil *iŋi "you (sing.)" (DATOGA *-ŋiɲi; Kalenjin: PAKOT ɲi:, Elgon-Mau *iŋa [< *iŋi-a])
[stem with NS *i "you (sing.)" (root 1600) inserted in V positions of canonical pron. shape VCV]

Kir-Abb: Nil: ENil: BARI ŋɔ', PL. ŋɔ "thing, object"
[stem plus NS *w n. deriv. suff. (< *ŋaw)]

Rub: IK ŋan "somebody"
[stem plus NS *n n. suff.]
Rub: IK N- << no longer productive prefix element found in all 1st and 3rd person pronouns >>

Sahelian innovation: use of this root as a base for pronomial formation, originally of emphatic pronouns, as in Songay and Maba. Probable Eastern Sahelian innovation: *iŋ(a), "you (sing. emph.)," seen in Nara, Aka, and perhaps Southern Nilotic reflexes, all today the regular independent pronouns for "you (sing.)"—from Nilo-Saharan *i "you (sing.)" (root 1600) plus stem. Kir-Abbaian innovation: *ŋgau "you (pl.)" (presumably again originally emphatic), composed of the stem plus the Nilo-Saharan second person plural element *u (root 1403), is preserved in Daju as the second person plural independent pronoun; in Bertha it now denotes "you (sing.)."

487. *ŋgà:d OR *ŋgá:d "to share (in doing)"

Koman: UDUK gàrr "to substitute for"
Koman: UDUK gàrrné' "taking turns"
[stem plus NS *n dur. plus NS *-eh adj. deriv. suff.]

Koman: UDUK gàŋgàr "to change place (as drinking or going to the blackboard)"
[partially redup. stem]
FOR ŋaar- (-aŋgaar-) "to divide; to share"
Kir-Abb: Nil: PENil *-ŋar "to share"
Rub: IK [iŋar- OR iŋaar- "to help, assist": LOAN (expected *igad-)]
[semantics: share > share in working]

488. *ŋgá:ɖ "dung"

Sah: KANURI ŋgàrgὸ "dung of camels, goats, sheep"
[stem plus NS *kʰ pl. marker (dung of these animals occurs in numerous lumps]

Kir-Abb: GAAM [garɲa "dung, fertilizer": LOAN (expected *gaɬ-)]
[stem plus probably KA *ɲ pl. marker]
Kir-Abb: Nil: SNil: NANDI ŋatatia "dung, river mud"
[stem with partial redup., plus SNil *-ia(n) n. suff. (NS *'y)]
Rub: IK gadár "a special kind of stool after having stomach pains; substance (green or brown) floating on still water"
[stem plus NS *r n. suff.]

489. *ŋgal "to speak"

FOR ŋal- "to tell"
Kir-Abb: DINIK ŋál- "to answer"
Kir-Abb: Nyimang *ŋgal "mouth" (NYIMANG ŋàl, DINIK ŋgàlà)
Kir-Abb: Nil: ENil: BARI ŋaŋalap- "to vex (with continuous reproach)"
[partially redup. stem plus NS *pʰ extend. intens.]
Kir-Abb: Nil: SNil: Kalenjin *ŋalá:l, *ŋalá:n "to speak, chat"
[stem partially redup. or plus *NS *n dur. as extended action]
Kir-Abb: Nil: SNil: NANDI ŋal "language"

490. *ŋgà:l "to arise, get up"
ÇSud: PCS *nga "to start out, rise up, fly"
KUNAMA gala- "to go up; to grow" [see root 464 for 2nd meaning]
Sah: KANURI ŋgàlwò "to recover (from illness)" [stem plus NS *p extend. plus NS *w
      punc. (-o < *-aw)]

Astab: Nub: NOBIIN gáll- "to rise (moon, stars), [gemin. as iter. (stars twinkle?); but high
      shine"   tone remains to be explained]
Kir-Abb: Nil: ENil: TESO -ŋalɛ "to be well" [stem plus NS *'y ess.-act. (*-a'y > ɛ)]
Kir-Abb: Nil: ENil: BARI [ŋaun- "to recover con- [CSud stem (with required *ŋg > BARI ŋ
      sciousness, recover from sickness": LOAN from   /#_) plus ENil ven. *-u(n)]
      CSud (expected *ŋal-)]
Rub: IK ŋaɫ-et- "to startle" [stem plus Rub *t caus. (NS *ţ)]
Rub: IK [iŋálé-et- "to be better (after sickness)":
      LOAN (expected *ŋaɫ-) from Ateker]

The narrowing of the application of the root in Kanuri, Teso, and Bari to getting up from illness
probably took place independently in each language because the accompanying morphology is dif-
ferent in each case. The Bari word is, moreover, a loan from Central Sudanic, suggesting that the
root may anciently have had this meaning as a secondary implication.

491. *ŋgap "to raise"
Koman: UDUK gàpúl "lump" [stem plus NS *l n. suff.]
CSud: PCS *ŋba "mound, raised surface"
KUNAMA gaburu- "to prick up ears" [stem plus NS *r iter.]
Kir-Abb: Nil: WNil: OCOLO ŋap "to hang up"
Rub: IK [ŋáb- "to put on (clothes)": LOAN (expected [semantics: via prior shift to "to hang,"
      *gab-), probably from Nilotic or Surmic]   seen also in Ocolo reflex]

492. *ŋgaT₃ OR *ŋga:T₃ "to grasp and pick up" [T₃ = ţʰ, tʰ, or t']
CSud: PCS *nga "to seize"
KUNAMA -gat- "to raise, lift off"
Kir-Abb: PNil *ŋatuɲ- "lion" (PENil *-ŋátúɲ-; PSNil [stem plus NS *ɲ n. suff.; semantics:
      *ŋetuɲ)   lion as snatcher of its prey; SNil: re-
                                                       gressive V-raising assim.: *a > *e
                                                       /#C_CuC# ?]
Kir-Abb: ENil: TESO -ŋat(ar) "to rob, pillage, loot" [stem (plus Ateker itive)]

Possible counter-indicator of Northern Sudanic: The most likely direction of semantic innovation
would be to the stronger action of seizing, and that shift would link Nilotic and Central Sudanic as
against Kunama.

493. *ŋgep' "to block"
CSud: PCS *ŋbɛ "to block from view"
KUNAMA gafi- "to half-shut, set ajar"
SONGAY jèjèbù "to half-close door" [partially redup. stem plus NS *-uh
                                     ven.]

Northern Sudanic semantic innovation: very specific narrowing of the meaning of the root to a
particular kind of blocking the way—setting a door ajar.

494. *ŋgér "to roll, turn round and round (tr.)"
SONGAY jíŋgírí "to make a ball" [partially redup. stem as iter. plus NS *-i
                                  itive]

Astab: Nub: DONGOLAWI gɛgɛr "to roll into ball" [partially redup. stem as iter.]
Kir-Abb: NYIMANG [gɛţɛŋ, gɛgɛţɛŋ "round": [stem plus NS *ŋ n./adj. suff.; 2nd
      LOAN (expected *ŋer-), probably from Nubian]   shape: same with partial redup.]

Kir-Abb: Nil: WNil: OCOLO ŋär, ŋɛr "rolling (of
      ground or water)"
Rub: IK ŋér (ŋérá-) "(porridge) twirling-stick" [stem plus NS *-ah n. deriv. suff.]

495. *ŋgɛb OR *ŋgɛp "shell, rind, hard skin"
CSud: PCS *ŋbɛ "shell, rind, skin"
KUNAMA gebeda "barefoot" [stem plus NS *d adj. suff.; semantics:
                           from callused sole of habitually bare
                           foot]
Sah: KANURI ŋgávál "egg" [stem plus NS *l n. suff.]
Kir-Abb: GAAM gàwldà "callus on foot" [stem plus NS *l n. suff. plus NS *tʰ or
                                        *ţ n. suff.]
Rub: SOO gɛbɛ "egg"

The distinct morphology of the Kanuri and Soo reflexes makes it probable that the meaning "egg"
arose separately in the two languages.

496. *ŋgé:ɗ OR *ŋgɛ:ɗ "long"
KUNAMA gera "long"
Sah: KANURI njéréré "very thin and long" [stem plus NS *-Vh n./adj. deriv. suff.,
                                           partially redup. (as intens.?)]
Astab: NARA ngir- "long"
Kir-Abb: Nil: WNil: OCOLO ŋɛdo "size (with re-
      spect to thickness)"

497. *ŋgé:ɖ "to forget; to miss"
Sah: KANURI njès "to forget" [Kanuri /z/ -> [s] /_#]
Kir-Abb: GAAM jèr- "to forget, miss (target), pre-
      tend ignorance"

498. *ŋgéţ OR *ŋgéţ' "to pluck, pick"
CSud: PCS *ŋgɛ "to pick out"
KUNAMA gedora "deforestation" [stem plus NS *r n. suff.]
Sah: KANURI ŋgát "to milk"
Kir-Abb: Nil: WNil: OCOLO ŋyɛţ "to milk"

Other possible reconstructions: *ŋgɛţ OR *ŋgɛţ'. Saharo-Sahelian semantic innovation: nar-
rowing of the application of the root to a particular kind of plucking or pulling action, namely,
milking.

499. *ŋgí:k OR *ŋgí:g OR *ŋgí:ɟ "to cut off"
CSud: PCS *ngi "short" [semantics: as in etymology of ENG-
                         LISH short, SPANISH curto, etc.]
KUNAMA gigi- "to mince"
Sah: KANURI njík "to rip, tear off piece"
Kir-Abb: Nil: WNil: OCOLO aŋiko "a kind of soil [NS *a- attrib. pref. plus stem]
      that crumbles in the hand like sandy loam"

Other possible reconstructions: *ŋgī:k or *ŋgī:g or *ŋgī:ɟ. Probable Northern Sudanic semantic
innovation: shift to multiple cutting of something, i.e., from "to cut off" to "to cut up." Saharo-
Sahelian semantic innovation: shift to breaking to pieces other than by cutting.

500. *ŋgí:l "to grip tightly"
CSud: ECS *ngi "to press"
Sah: KANURI njíl "to peel back to pop out"

FOR ŋail- (-aŋgil-) "to pull out"
SONGAY jílá ŋkóotò "to carry on the shoulders as
  one carries a lamb"

[stem plus NS *n dur. plus NS *kʰ iter.
plus NS *w punc. plus NS *tʰ cont.
(i.e., < *gilankawt-)]

Kir-Abb: DINIK ɲìl "to milk"

[apparently *ɲ > Dinik [ŋ] /#_i; seman-
tics: to grip teat to squeeze out milk]

Saharo-Sahelian semantic innovation: development of double sense of gripping in order to take out
or away.

501. *ŋgìːr   "to creak, squeak"
KUNAMA giri- "to creak, squeak"
Sah: KANURI njíttí "cricket"

[< *ŋgirt-, stem plus NS *tʰ n. suff.]

Astab: Nub: DONGOLAWI girgittɛ "cricket"

[< *girgirt-, redup. stem plus NS *tʰ n.
suff.]

PRub *ɟiru OR *ɟiruh "locust" (IK girú-)

[requires earlier *aŋgir-, NS *a- n. de-
riv. pref. plus stem: *ŋg > PRub *ɟ
/V_, but > *ŋ /#_Vr]

Probable Saharo-Sahelian innovation: derivation of a noun for "cricket" from this verb, with the
meaning "locust" as a later development (by addition of *a- noun deriving prefix) in Rub. The
sharing of the same basic word structure in Saharan and Nubian may reflect old areal influences
that are evident in a number of instances in this dictionary (e.g., root 1055, among others).

502. *ŋgòr   "earth"
CSud: PCS *ngo "earth, soil"
SONGAY nóŋgórí "place"

[*an- prevocalic allomorph of NS *a- n.
deriv. pref. plus NS *o- n. deriv.
pref. plus stem]

Aatab: Taman *ŋguruːk "earth" (SUNGOR ŋguruk
  "earth"; TAMA ŋuruːk "dust, earth")

[stem plus NS *kʰ pl. marker (mass
pl.)]

Kir-Abb: Nil: SNil: Kalenjin [*ŋaːriyam "iron ore":
  LOAN from Rub (*r rather than expected *ʀ)]

[see 2nd IK entry]

Rub: IK ŋɔr "ochre"
Rub: IK ŋaríám "ironstone"

[stem plus Rub *-am singul. suff., with
regressive V assim. (*ŋoriam > /ŋa-
riam/; Ik reflex today refers to a
black ironstone, but meaning
"ochre" of 1st Ik entry suggests that
the original reference was to red
lateritic iron-bearing earth]

503. *ŋgɔ OR *ŋgɔː   "to call"
CSud: PCS *ngɔ "to call"
Astab: Taman *ŋgaːt "name" (SUNGOR ngat,
  TAMA ŋaːt)

[stem plus NS *tʰ n. suff. (*ŋgɔ-at >
*ŋgaːt)]

Kir-Abb: proto-Daju *aŋge "name"

[NS *a- n. deriv. pref. plus stem (plus
Daju *-e n. sing. (*a-ŋg(o)-e)]

Kir-Abb: proto-Daju *ŋgan- "to count"

[stem plus NS *n dur. (*ŋg(o)-an-)]

Kir-Abb: Nil: ENil: BARI ŋö-kin "to accuse, charge
  with, denounce"

[stem plus ENil benef.]

Kir-Abb: Nil: ENil: BARI ŋɔun-dya "to vex"

[stem plus ENil ven. *-(u)n]

Taman and Daju "name" are shown by their morphology to be separate derivations from the verb.

504. *ŋgɔl   "to look"
KUNAMA golli- "to look at"

[stem plus NS *-i itive?]

Sah: KANURI ŋgál "to measure out"

[semantic: "look" > "inspect" > "mea-
sure"]

Astab: PNub *galt- "eye" (DILING kalti, PL. kale;
  BIRKID kaldi; etc.)

[stem plus NS *tʰ or *t̪ n. suff.]

Astab: Nub: DONGOLAWI galig "to resemble"

[sem plus NS *k caus.; semantics: as
ENGLISH to look like]

Kir-Abb: C.Jebel: AKA gəllək- "to see"
Kir-Abb: Nil: ENil: TESO -ŋɔɦar "to look at, see"

[stem plus NS *k intens.?]
[stem plus Ateker *-i def. (?) plus
Ateker *-ar itive]

505. *ŋgùr   "to cut"
KUNAMA guddo-, gurdo- "to lop, sever"
Sah: KANURI ŋgə̀rtà "to cut with difficulty" (H)

[stem plus NS *t̪ caus. (as intens.?)]
[stem plus NS *tʰ cont. plus NS *-a dis-
punc.]

Kir-Abb: Nil: ENil: BARI ŋuŋur- "to chip out small
  pieces"

[partially redup. stem as iter.]

Kir-Abb: Nil: ENil: BARI ŋurum "to cut off pieces"
Rub: IK ŋur- "to cut, break"

[stem plus NS *m iter. concis.]

506. *ŋgùːr   "to bend at the knees"
CSud: PCS *ngu "knee"
Sah: KANURI ŋgúrŋgúr "to crawl"
Sah: KANURI [ŋgù "to bow down": LOAN from
  CSud (CSud shift: C# > Ø)]
Maban: MABA -ngun- "to fall down"

[redup. stem as iter.]

Kir-Abb: Nil: SNil: Kalenjin [*ŋuruːk "to bow, bend
  down": LOAN (expected *ŋuːʀuk), possibly from
  Rub]

[stem plus NS *kʰ iter. or *k intens.]

507. *ŋgùːrùːm   "to kneel" [root 506 plus NS *m iter. concis.]
Sah: KANURI ŋgùrùŋgùrùm "to kneel down in res-
  pect; knee"

[redup. stem as intens. or iter.; n. < v.]

Kir-Abb: GAAM gurum- "to kneel"

508. *ŋgùːz   "to run"
Koman: UDUK gùs "to run (sing. subj.); to be afraid
  of; to flow of river, blood, water"
Sah: KANURI ŋgùzá "to flee, run away" (H)
Kir-Abb: GAAM gujguj "shuffling"

[stem plus NS *-a dispunc.]
[redup. stem as iter.]

509. *ŋgwa   "what?"
CSud: PCS *ngwa << interrogative pronoun stem >>
Maban: MABA nga "comment?"
Maban: MABA nge "what, how?"

[*ŋga-y, stem plus probably NS *y
n/adj. forming suff.]

Maban: MASALIT ŋa "who?"
Maban: MASALIT ŋeri "what?"

[stem plus NS *r- dem. root (1244)?]

Kir-Abb: GAAM ŋəna "who?"

[stem plus NS *n n. suff.]

Kir-Abb: C.Jebel: AKA ŋa "who?"
Kir-Abb: NYIMANG ŋa "who?"
Kir-Abb: Surmic: SESurmic *ŋane "who?"
Kir-Abb: Surmic: SWSurmic *aŋ "what?"

[stem plus NS *n n. suff. (as in Gaam)]
[NS *a- n. deriv. pref. plus stem]

Kir-Abb: PNil *ŋa "who?"

Probable Kir-Abbaian semantic innovation: development of the specific meaning "who?" The Masalit case is a probable parallel separate innovation because it is not at all indicated in the reflexes of the very closely related Maba language.

510. *ŋgwá:d   "side"

Koman: UDUK gwár "side, ribs"

Sah: KANURI ŋgáràmò "steep river bank (no water)"   [stem plus NS *m n. suff.]

Sah: KANURI ŋgáraì "river bank (when there is no water)"   [stem plus NS *-Vh n. suff. plus *y n. suff.]

Astab: Taman: TAMA [ga:r "shore, bank, waterside": LOAN (expected *ŋa:d)]

Astab: Nub: NOBIIN gáar "riverbank"

Astab: Nub: DONGOLAWI [na:r "riverbank": LOAN from NS language in which *ŋg > *ŋ (> /n/ by regular Dongolawi shift)]

Kir-Abb: Nil: WNil: OCOLO [gät "the river, riverbank, at the river, to the river" LOAN from NS language where *ŋgw > *g and *d was preserved]

Saharo-Sahelian semantic innovation: narrowing of meaning to side of a stream.

511. *ŋgwând   "to be little"

Koman: UDUK gwàdágwàd "little, small"   [adj. by redup. stem]

CSud: PCS *ngwa "child"

KUNAMA gaju "little, small"   [< earlier *gadu, stem plus *-uh n./adj. deriv. suff.]

Maban: MABA ŋgandik "new"   [-k is Maba sing. suff.; semantics: "little" > "young" > "new"]

Kir-Abb: Nil: ENil: BARI [ŋwajik "children": LOAN from CSud (expected *ŋwar-)]   [*ŋwa-y-ik, borrowed stem plus BARI -Vk pl. (NS *kʰ), with epenthetic *y (> BARI j)]

Rub: IK gaɗ- "to not be enough"

512. *ŋgwɛd   "throat"

KUNAMA goroŋgora "larynx, Adam's apple"   [redup. stem]

Sah: KANURI ŋgògòltó "throat"   [partially redup. stem plus NS *tʰ n. suff.]

FOR goroŋgoroŋ "throat" (B)   [stem plus NS *ŋ n. suff., redup.]

Maban: MABA kongorik, PL. kongoritu "cheek"   [NS *kʰ n. pref. plus stem]

Astab: Taman: TAMA ŋɔrɔŋɔrɔ "throat"   [redup. stem]

Kir-Abb: Nil: ENil: BARI [gɔr "collarbone": LOAN (expected *ŋwor)]

Kir-Abb: Nil: ENil: BARI [gworo', PL. gworoton "throat": LOAN (expected *ŋworol-)]   [stem plus NS *l n. suff.]

A recurrent tendency to reduplicate this root can be seen in the attested reflexes, although the differing details of this process shows it to have taken place separately in probably each case (only the Tama and Kunama reflexes correspond fully regularly in every reduplicated segment).

513. *ŋgwɛ:m   "chin"

KUNAMA goma "chin; beard"

Sah: KANURI ŋgùmí "chin"   [stem plus NS *'y n. suff.]

Astab: Nub: DONGOLAWI ɡumur "neck," NOBIIN gúmúr "nape")   [stem plus NS *r n. suff.; semantics: "chin" > "area under chin" > "throat," hence to "neck" and then "nape," as in Nobiin]

514. *ŋgwí:r   "large horned or tusked herbivore"

FOR áŋgír "elephant"   [NS *a- n. deriv. pref. plus stem]

Maban: MABA ngurgetik, PL. ngurgutu "rhinoceros"   [probable redup. stem plus NS *tʰ n. suff., *ŋgurŋgur-t-, with nasal cluster dissim. and contraction *rt > *t]

Kir-Abb: Nil: SNil: AKIE nyí:é: "rhinoceros"   [Akie: < *ŋi:R- plus SNil sing. 2ndary n. suff. (-e: < PKal *-et), < *ŋi:R-]

Kir-Abb: Nil: ENil: MAASAI [-ŋíró "brown, rhinoceros-colored" (Purko e-ŋíró "rhinoceros"): LOAN (expected *ŋirr-) possibly from SNil]

Possible semantic innovation supportive of placement of For in its own branch coordinate with the rest of Sahelian: specification of the rhinoceros in the Maba and Nilotic reflexes.

515. *ŋgwí:rént   "hippopotamus"   [root 514 plus NS *n and NSud *t n. suff.]

Sah: KANURI ŋgúrtù "hippopotamus"

FOR grínti "hippopotamus"

Maban: MABA ngirinti "hippopotamus"

Kir-Abb: GAAM jɛrs, jɛlɛrs "hippopotamus"   [stem with metathesis: *jɛlɛr- < pre-Gaam *gɛtɛr- < PKA *ŋgeret < pre-PKA *ŋgi:rent]

Kir-Abb: Surmic: DM *ŋɛtɛl "rhinoceros"   [phonological history as in Gaam reflex; semantics: meaning shift may reflect influence of former coexistence of related, resemblant root 514 in Surmic; NS *r > Surmic *R > DM *l]

Kir-Abbaian phonological innovation: Metathesis of the second and third consonants is attested in both the Gaam and Surmic reflexes, along with a second shared feature, a regressive vowel assimilation: *ŋgwi:rent > *ŋgwi:nter (metathesis shift) > *ŋgwitɛr by regular proto-Kir-Abbaian nasal cluster simplification rule, > *ŋgetɛr (vowel assimilation). The Gaam and Surmic reflexes are then regular outcomes of this reconstructed form. This root has been borrowed into some Sudan Arabic dialects, probably from either Maba or For. The For and Maba shapes may reflect relatively recent areal spread of a particular shape of the word, with the For form deriving either from Maba or Sudan Arabic.

516. *ŋgwó: "to be (in a place)"

CSud: PCS *ngwi "to be (somewhere)"   [stem plus Csud *-i v. ext. (NS *'y ess.-act.]

Sah: KANURI ŋgâ "living, healthy"   [stem plus NS *-ah n./adj. deriv. suff.]

SONGAY gò "to be" (être)

Kir-Abb: Nil: ENil: BARI [gwɔn "to be; condition (n.)": LOAN from language in which *ŋg > g]   [stem plus NS *n dur. or *n n. suff.]

Rub: IK ógw- "to live; to stop doing"   [semantics: "be (in a place)" > "stay still" > "stop"]

517. *iŋg   "to spill, run out (water)"

KUNAMA -ges- "to water (livestock), irrigate"   [underlying stem *-ig- (of which -g- in left) plus NS *ṣ caus.]

Sah: KANURI nji "water"   [stem plus NS *-Vh n. deriv. suff.]

FOR iŋ- OR ŋi- "to pour"

Maban *iŋgi "rain" or "water" (MABA iɲji "water"; MIMI engi "rain") | [strructure as in Kanuri reflex]

Maban: MABA -njis- "to vomit" | [stem plus probably NS *θ intens.]

Astab: NARA iŋgit "to water (livestock)" | [stem plus NSud *t̪ caus.]

Astab: Taman: TAMA ɲiː, PL. ɲiːŋ "cool" | [stem plus NS *'y or *-Vh n./adj. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO ɲic "cool" | [stem plus NS *'y n./adj suff. or *ṣ n./adj. suff. or NS *t̪ʰ adj. suff.]

Saharo-Sahelian innovation: word for "water" derived from the verb by addition of the Nilo-Saharan *-Vh noun deriving suffix. Eastern Sahelian semantic and morphological innovation: derivation of an adjective for "cool" by addition probably of the Nilo-Saharan *'y noun/adjective suffix. Different alternative suffixes are possible in each case, but even so a common semantic innovation in the underlying simple verb from "spill" to "become wet" to "become cool" can be postulated from the Taman and Nilotic attestations.

PROTO-NILO-SAHARAN STEM-INITIAL *ŋ

518. *ŋà OR *ŋā "to bite into"
CSud: PCS *ŋa "to bite into"
KUNAMA -ŋa- "to eat"
KUNAMA ŋada "food" | [stem plus NSud *t̪ n. suff.]
SONGAY ŋà "to eat"
Astab: Taman *ŋan "to eat" | [stem plus NS *n dur.]
Rub: PRub *ŋam "sorghum" | [stem plus NS *m n. suff.; semantics: "eat" > "food" > staple food, i.e., "sorghum" (for similar semantics, see Songay "sorghum" in root 1552]

The meaning reconstructed here supposes a Northern Sudanic semantic innovation, from "bite into" to "eat."

519. *ŋāb OR *ŋāp "loins"
Sah: KANURI ŋgávò "back" | [stem plus NS *w n. deriv. suff.]
Sah: KANURI ŋgàvə̀rə̀ "tail" | [stem plus NS *r n. suff.]
Kir-Abb: Nil: ENil: TESO a-ŋabet "waist" | [stem plus NS *t̪ʰ or *t̪ n. suff.]
Rub: IR ŋabér "rib" | [stem plus NS *r n. suff.]

520. *ŋàm "to extend, stretch out"
Koman: UDUK ŋàmáŋàm "brðad, wide" | [adj. by redup. stem]
Sah: KANURI ŋgàm "to become lean"
Kir-Abb: Surmic: DM *ŋam- "to yawn"
Kir-Abb: Nil: WNil: OCOLO ŋam "to open mouth, gape, yawn"

Surma-Nilotic semantic innovation: narrowing of meaning to particular kind of stretching out.

521. *ŋaːɲ "bare or hard ground"
CSud: PCS *ŋa "hard ground"
FOR ŋááɲ "sand"

Kir-Abb: proto-Daju *ŋaɲice, PL. *ŋaɲu(ge) "mountain" | [semantics: via presumed earlier meaning "stone" with old NS linkage of "stone" and "mountain" (e.g., in root 1291 and 1537, among others]

Kir-Abb: Nil: PSNil *ŋaːɲ "sandy ground" (Kalenjin *ŋaːɲ; DATOGA nyeːŋida "earth") | [Datoga: metathesis of the two nasals]

Proposed Sahelian semantic innovation: A shift of meaning to perhaps "rocky ground" could underlie the three attested Sahelian reflexes. The Daju meaning in that case could be derived by a further shift, "rocky ground" > "stone" > "mountain" (or perhaps directly to "mountain," since mountains are typically rugged and rocky in many parts of the eastern sudan geographical zone. The meaning shift to "sand" appears in both For and Southern Nilotic and could be considered a counterindication to the evidence elsewhere of Daju's being closer related to Nilotic. But, in view of the preservation of the older Nilo-Saharan root for "sand" (940) in the Datoga subgroup of Southern Nilotic, the meaning probably was separately innovated in For and Kalenjin.

522. *ŋáp "to seek"
Koman: UDUK ŋápʰ "to want, seek, search for"
CSud: PCS *ngba "to be seen" | [semantics: "seek" > result of seeking, "be seen"]
Kir-Abb: GAAM ŋə́wn- "to catch, grasp, seize" | [stem plus NS *n dur.; semantics: "seek" > "hunt" > "catch"]
Kir-Abb: Nil: ENil: TESO [-ŋobɛl "to desire": LOAN from unattested Wn Rub source (some NS *a > Wn Rub *ɔ /_b)] | [stem plus NS *l iter.; semantics: common linkage in world's languages of seeking and wanting]
Rub: IK [iŋɔ́bɛ́l- "to look at somebody from the side": LOAN back from Ateker (expected *ŋɔbɛl- without implosive /ɓ/)] | [see Teso entry preceding]

523. *ŋāːr "sprain, injured limb"
Sah: KANURI ŋgàrŋgàr "pain in foot after long march" | [redup. stem as iter.]
Kir-Abb: GAAM ŋari- "to sprain, twist, wrench (limb)" | [stem plus NS *'y ess.-act. (as denom.)]

524. *ŋàːr "to make a deep sound"
KUNAMA ŋarfa- "to snarl, growl" | [stem plus NS *pʰ extend. intens.]
KUNAMA ŋarta- "to snore" | [stem plus NS *t̪ʰ cont.]
KUNAMA ŋaršo- "to snap, crack (sound)" | [stem plus NS *θ intens.]
Sah: KANURI ŋgàr "to belch"
Astab: Taman: TAMA ŋaːra "thunder" | [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO ŋär "to growl, rumble, roar (of lion)"
Kir-Abb: Nil: WNil: NAATH ŋar ŋar "crying, almost in tears" | [redup. stem as iter.]

525. *ŋát "to talk about, recount, tell"
SONGAY ŋáaréy "to ask, beg, implore" | [stem plus NS *'y ess.-act.]
Kir-Abb: proto-Daju *ŋad- "to speak"
Kir-Abb: Nil: WNil: OCOLO ŋät "to hint at"

526. *ŋáːṭ "to look for"
Koman: UDUK ŋáṭʰgìn "to measure one step, pace measure for distance" | [compound of stem plus 2nd word as yet undefined]
CSud: PCS *nda "to look for"

Kir-Abb: Nil: WNil: OCOLO ŋäṯ "to expect, look
for, think about"

527. *ŋáwp "to become big (in size or amount)"
Koman: UDUK ŋápʰ "grown (big all over)"
CSud: PCS *ngbo "to grow in size or amount"
Sah: KANURI *ŋgóvù "much, many" — [stem plus NS *-uh n./adj. deriv. suff.]

528. *ŋáː'w "to neglect, not take care of"
Koman: UDUK ŋáá "to lose by forgetfulness, leave
behind, be absent-minded, be preoccupied"
CSud: PCS *ŋu "to be in poor condition"
KUNAMA ŋaoto- "to deceive, cheat" — [stem plus NS *tʰ cont.]
Sah: KANURI ŋgà "to abuse, mistreat"
Kir-Abb: GAAM ŋaaɲ- "to be careless" — [stem plus NS *ɲ extend. > intr.]
Rub: IK ŋáb-uk'-ot- "to finish, complete" — [stem plus IK itive; semantics: "leave off taking care of," hence, "finish"]

529. *ŋáy "to pay attention to, take notice of"
KUNAMA ɲe-, ŋe- "to cogitate"
Kir-Abb: C.Jebel: MOLO ŋədn- "to know" — [*ŋə-t-n-, stem plus NS *tʰ cont. plus NS *n dur.]
Kir-Abb: Daju: NYALA ɲe "to see"
Kir-Abb: Nil: PWNil *ŋay "to know"
Kir-Abb: Nil: ENil: MAASAI -ŋenú "to learn" — [stem plus *n dur. plus ENil *-u ven. (NS *-uh)]
Kir-Abb: Nil: SNil: NANDI ŋe "to hear"
Kir-Abb: Nil: SNil: Elgon Kal. *ŋeːɲ "to herd (livestock)" — [stem plus NS *ɲ extend., i.e., keep watch over (animals)]
Rub: SOO ıŋén "to see" — [*i- v. class pref. plus stem plus NS *n dur.]

530. *ŋè "yes"
Koman: UDUK nyè "yes"
SONGAY ɲèɲà "assez" — [redup. stem]
Kir-Abb: Nil: WNil: OCOLO ŋɛ, ŋä "[utterance] of assent"

531. *ŋé "to scratch"
Koman: UDUK nyèŋ "to claw, grip with strong grip" — [stem plus NS *ŋ punc.]
FOR ŋiiŋ "scorpion" — [stem plus probably NS *'y or *y n. deriv. suff. (to account for V length) plus NS *ŋ n. suff.]
Maban: MABA nyeŋermek, PL. nyeŋermisi "nail, claw, talon" — [redup. stem, as iter., plus NS *r and *m n. suff.]
Kir-Abb: GAAM ɲ̃ɛɛ̃- "to incise, line, scarify, vaccinate"
Kir-Abb: PNil *ŋeŋe "to be rough" (WNil: OCOLO ŋëŋ "to be gritty"; ENil: TESO -ŋeŋe "coarse, rough") — [redup. stem as iter., i.e., repeated scratching of surface, making it rough]
Kir-Abb: Nil: PENil *-ŋe "to scratch" (MAASAI -ŋe "to itch"; BARI ŋe "to carve")

532. *ŋér "to cut off"
Koman: UDUK ànyèr "razor"
CSud: PCS *ndre "sharp-pointed" — [NS *a- n. deriv. pref. plus stem]
Astab: Nub: DILING ɲer "zerreissen"
Kir-Abb: Surmic: DM [*ŋɛr "to divide": LOAN (expected *ŋel-)]
Kir-Abb: Nil: PENil [*-ŋer-, *-ɲer- "to reap by cutting; to tear": LOAN (expected *-ŋerr-)]

The Surmic and Nilotic reflexes may derive from a single proto-Surma-Nilotic word borrowing, possibly from Koman.

533. *ŋeṯ' "to burn (intr.)"
Koman: S. KWAMA ant' "fire"
CSud: PCS *ŋe "to burn (intr.)" — [NS *a- n. deriv. pref. plus stem]
Kir-Abb: NYIMANG ŋèšì "smoke"
Kir-Abb: Nil: WNil: NAATH ŋeṯ "ashes" — [presumed *ṯ > š /V_V, V = +front]

534. *ŋèl "tongue"
CSud: PCS *(n)drɛ "tongue"
KUNAMA ŋela "tongue"
Sah: KANURI ŋgálŋgàl "collarbone" — [redup. stem; semantics: "tongue" > "voice" > "throat, larynx" (by redup.: see root 512 above for recurrent NS pattern of redup. of words for "throat") > "lower part of neck" > "collarbone"]
Astab: PNub *ŋalṯ- "tongue" (Hill Nubian *jalḑ; BIRGID natti; NOBIIN nàr; MIDOB kada) — [stem plus NSud *ṯ n. suff.; Hill Nubian" *ŋ > *j /_VI; Birgid: stop assim., *nalt- > natt-; Nobiin; converse assim., *nalt- > *nart- > *narr > nar]
Kir-Abb: GAAM ŋálg, PL. ŋèlg "neck"
Kir-Abb: C.Jebel *ŋaal- "neck" (AKA ŋaalo, MOLO ŋalu, KELO ŋaalu) — [V length remains to be explained]
Kir-Abb: BERTHA ŋèlù "voice"
Kir-Abb: NYIMANG [ŋildi "tongue": LOAN from pre-proto-Hill Nubian (before *ŋ > *j /_VI)] — [structure as in Nubian]
Kir-Abb: TEMEIN ŋalo "neck"
Kir-Abb: proto-Daju *ŋaase "neck" — [< pre-proto-Daju *ŋalse, stem plus NS *s n. suff., probably originally as sing. marker as in other Daju roots]

Saharo-Sahelian semantic innovation: shift of meaning from "tongue" to probably "voice," and hence to "throat, larynx." The Nubian reflexes might seem to conflict with this postulation; however, the addition of the Nilo-Saharan noun derivational suffix *ṯ implies a rederivation of the meaning "tongue" from the sense "voice," since the suffixation is otherwise an unmotivated add-on. DONGOLAWI nɛd "tongue" is probably not a member of this set, since its expected reflex should be *nadd-; see root 258 for an alternative derivation for it. Kir-Abbaian semantic innovation: A further shift to "neck" in general is attested or implied in all the non-borrowed Kir-Abbaian noun reflexes.

535. *ŋèmpʰ "to lap"
CSud: ECS *mbɛ "to lap"
Kir-Abb: proto-Daju *ɲabire "tongue" — [< pre-proto-Daju *ɲebir- < *ŋebir-, stem plus Daju reflex of *ṯ n. suff.]

Kir-Abb: PNil *ŋeˠɛp "tongue" (PWNil *1ɛp; PENil   [metathesis of *ŋɛpɛˠ-, stem plus NS *1
   *-ŋɛjɛp; PSNil *ŋɛlˠɛp)   n. suff.; WNil: regular $C_1V > \emptyset$
                                       /#__CVC, where C_1 = +velar]

Kir-Abb: Nil: ENil: BARI ŋɛbi "cheek" (< *ŋɛp-)

Rub: IK ŋɔf- "to chew a mouthful"   [< earlier pre-Ik *ŋɛɔf-, with regular
                                      outcome of *ɛ /_NC]

Kir innovation: derivation of noun from verb by addition of Nilo-Saharan *1 noun-forming suffix. Contrary to recurrent opinion among scholars of Nilotic, the initial Nilotic syllable *ŋɛ- cannot be reckoned a prefixal element here. The comparative evidence shows it to be an integral part of the original root. Its loss in Western Nilotic is an outcome of a regular pre-Western Nilotic soundshift *$C_1V > \emptyset$ /#__ C_2VC, where C_1 = [+velar] and C_2 = [-velar]. Note that the Nilotic root for "tongue" is thus an unrelated, chance resemblance to the early Nilo-Saharan root of that meaning (root 534). The Bari noun is logically better derived from a verb with the innovated meaning seen in Rub than a verb with the reconstructed original meaning. It is therefore to be suspected that the Bari reflex, despite its regularity of sound correspondence, may have been a borrowing from an extinct language of the Rub branch of Eastern Sahelian.

536. *ŋèr OR *ŋèːr   "young woman"

Koman: UDUK nyàrá' "young girl, maiden"   [stem plus NS *-Vh n. suff.]
CSud: PCS *ndrɛ "mother"

Kir-Abb: Nil: WNil: OCOLO [nyar "child, daughter,
   offspring": LOAN from Koman (*ɛ > *a is a
   Koman soundshift)]

Kir-Abb: Nil: WNil: NAATH nyiɛr "girl"

Kir-Abb: Nil: WNil: JYANG nyir "girls"

PRub *ŋèr "girl"

537. *ŋeyl   "to move about (intr.)"

CSud: ECS *ŋe "to move, stir (intr.)"

KUNAMA ŋeila- "to hang, moving in the wind (of
   branches)"

Kir-Abb: Nil: WNil: OCOLO nyɛl "to move about
   (as oil on top of soup)"

PNS *1 rather than *l must be reconstructed here, because *l would require a Central Sudanic outcome *ndre.

538. *ŋiár   "raw skin, exposed flesh"

Sah: KANURI njírí "tanned hide"   [stem plus NS *-Vh n. deriv. suff.]

SONGAY ɲiréy "acne"   [stem plus NS *y n. suff.]

Astab: Taman *ɲir- "tooth" (SUNGOR ɲirit; TAMA
   ɲiit, PL. *ɲiiɲ)

Astab: PNub *ŋirt- "tooth" (NOBIIN nit; BIRGID   [see root 534 above for the same Nubian
   ɲildi; Hill Nubian *jil-; MIDOB keddi)   correspondence patterns for PNS *ŋ
                                   (in Birkid, *ŋ > *n, then > ɲ /_i; for
                                   final *t see note to this cognate set]

Astab: Nub: DONGOLAWI [girgid "gums": LOAN   [*girgirt-, redup. stem plus *t n. suff.
   from NS language in which *ŋ retained or > *g]   (sing.) seen also in other Eastern Sa-
                                   helian reflexes]

Kir-Abb: proto-Daju *ɲiRte, PL. *ɲiR "tooth"

Kir-Abb: Nil: PWNil *ŋiar "gums" (OCOLO nyiar;
   NAATH, JYANG nyar)

Kir-Abb: Nil: PENil *-ŋirt- "gums" (MAASAI ɛ-ɲirt;   [for probable source of this *t, see note
   TESO a-ŋirit; BARI ŋido')   to this cognate set]

Kir-Abb: Nil: ENil: BARI ŋir-ja "to chew, gnaw"   [see note for suggested derivation]

Rub: SOO ŋĕt "gums"
                         [< pre-SOO *ŋèrét, with regular SOO r
                         deletion]

The cognation pattern postulated here implies an Eastern Sahelian semantic innovation: a narrowing of the application of this root to the membranes of the mouth, namely, the gums. The two Eastern Sahelian semantic outcomes for this root are regionally distributed—"tooth/teeth" among the Daju and the Western Astaboran societies, which have a long history as neighbors or near neighbors in northern and middle parts of the country of Sudan, and "gum" among the Nilotes and the Soo, who have long lived surrounded by Nilotic territories. The presence of the root as a loan in the meaning "gum" in Dongolawi, far separate from the other cases of that meaning, confirms the semantic logic that "gum" from earlier "raw skin, exposed flesh" was the original Eastern Sahelian innovation, with "tooth" arising as a secondary innovation of Western Astaboran, adopted in Daju either independently or because of early areal influences. An alternative history would derive the root for "gums" from a verb *ŋir "to chew," known only, however, in Bari of Eastern Nilotic despite the relative variety and wealth of identified Nilo-Saharan roots denoting alimentary actions of the mouth. Moreover, a derivation of the noun from a verb "to chew" would favor an initial reference of the noun to teeth rather than gums, thus conflicting with the distributional evidence pointing to "gum" as the prior meaning. In addition, a verb shape *ŋir cannot account for the Western Nilotic vowel correspondences. It it thus preferable at this point to view the so far isolated Bari verb as a back-formation from the noun in its Eastern Nilotic plural shape *ŋir. The suffixation in *t widely found in the Eastern Sahelian reflexes can be seen to have been added originally, as overtly attested in Taman and Daju, as a singular marker.

539. *ŋid   "to flash"

CSud: ECS *ndi "to flash"

KUNAMA ŋirši- "to sparkle"

Kir-Abb: Nil: WNil: NAATH ŋir ŋir "bright and   [stem plus NS *s prog.]
   shiny"   [adj. by stem redup.]

540. *ŋíːl   "to become wet"

KUNAMA ŋila "streambed"

Sah: KANURI ŋjìrət "to spray saliva through teeth"   [stem plus NS *tʰ cont., added since NS
                                       *1 > KANURI r /_#]

Sah: KANURI njílèlè "spittle"   [stem plus NS *y n. suff., partially re-
                                   dup.]

Astab: Nub: DILING jile "spittle"   [stem plus NS *y n. suff.; for NS *ŋ >
                                   Hill Nubian *j /#_Vl, see roots 534
                                   and 538 above]

Kir-Abb: Nil: WNil: OCOLO ŋiny "to cool off"   [Ocolo nasal assim. of PNil *1ˠ (NS *1)
                                     as also in root 546]

Apparent Saharo-Sahelian innovation: derivation of noun for "spittle" by addition of Nilo-Saharan *y noun suffix to the verb.

541. *ŋíθ   "to look at"   [root *ŋi- seen in root 542 plus NS *θ intens.?]

Koman: UDUK nyíth "to recognize"   [NS *θ > pre-UDUK tʰ ~ s /_#; seman-
                              tics: "look at" > "see" > "recognize"]

Sah: KANURI ŋgás "to try"

Kir-Abb: Nil: WNil: NAATH nyiֈ "to try"

Kir-Abb: Nil: ENil: TESO -ŋit "to ask; enquire; apply
   for"

Saharo-Sahelian semantic: shift of sense from "look at" to "look for, seek," hence "try."

542. *ŋíːt' OR *ŋíːֈ   "to watch closely"   [root *ŋi- seen in 541 plus NS *t' iter. intens.?]

CSud: PCS *nji "to stay" (AJA "to stay, wait")   [semantics: "watch" > "wait" > "stay"]

Sah: KANURI njís "to care for"   [semantics: "watch" > "watch over"]

Kir-Abb: Nil: ENil: TESO -ŋic "to examine, search"

Other possible reconstructions: *ŋīːṭ' or *ŋīːṭ.

543. *ŋoɗ   "to cut off"
KUNAMA ŋar- "to castrate"
Astab: Nub: DONGOLAWI nodd- "to cut, cut up,   [*nord-, stem plus NS *tʰ cont.]
cut into pieces"
Kir-Abb: Nil: WNil: NAATH ŋuɔt "to cut off"
Kir-Abb: Nil: WNil: JYANG ŋot "to chop"

544. *ŋɔ́   "to break up, fragment (tr.)"
CSud: PCS *ŋɔ "to break apart (tr.)"
Sah: KANURI ŋgáyáŋgáyámí "potsherd"   [stem plus NS *y n. suff., redup., plus
                                          NS *m and *'y n. suff.]
Kir-Abb: TEMEIN ŋɔt "to break"   [stem plus NS *tʰ cont.]
Kir-Abb: Nil: SNil: Kalenjin *ŋɔ "to grind (grain)"
Rub: IK iŋaam- "to grind roughly"   [< *ŋoam-, stem plus NS *m iter.
                                        conc.]
Rub: PRub [ŋɔ "to grind": LOAN from SNil (NS
#CV# > PRub *#VC#)]

545. *ŋɔ̀l   "to do continually, always"
Koman: UDUK ŋàl "to do continually"
Sah: KANURI ŋgàlté "ever; never (in negative)"   [stem plus NS *tʰ and *y n./adj. suff.]
Kir-Abb: Nil: ENil: TESO ŋol "every"

546. *ŋɔ́ːḷ   "groin"
Sah: KANURI ŋgóló "penis, vagina"   [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: GAAM ŋə́ŋə́d, PL. ŋəŋaḷg "hip, loin, thigh"   [partially redup. stem]
Kir-Abb: Nil: WNil: OCOLO ŋɔny "anus"   [Ocolo nasal assim. of PNil *lʸ (NS *ḷ)
                                            as also in root 540]

547. *ŋɔ́ːr   "(to be) on top, above"
KUNAMA ŋora "sky, rain"
FOR ŋorra "knoll" (B)   [stem plus NS *-ah n. deriv. suff.]
Astab: Taman: TAMA ŋur, SUNGOR ŋor "head"
Astab: Nub: NOBIIN [nóor "God": LOAN (expected   [semantics: "above" > "sky, heavens"
*naar)]   (as in Kunama) > "God"]
Kir-Abb: NYIMANG [nɔr "forehead": LOAN from
NS language in which NS *ŋ > n (Nubian?)]
Rub: IK ŋór- "to be early, be first"

548. *ŋúr   "to become stunted, grow poorly"
Koman: UDUK ŋúráŋùr "stubby"   [adj. by redup. stem]
CSud: PCS *ndru "to shrivel"
Sah: KANURI ŋgɜ̀rsà "to grow old (of plants)" (H)   [stem plus NS *s prog. plus NS *-a dis-
                                                        punc.]

549. *ŋùːr   "to growl"
KUNAMA ŋuru- "to murmur, snore, growl, meow"
KUNAMA ŋurtu- "to snarl, growl"   [stem plus NS *tʰ cont.]
Sah: KANURI ŋgùrŋgùr "to grumble; to roar (lion)"   [redup. stem as iter.]
SONGAY ŋwura "to growl" (P)   [stem plus NS *-a dispunc.]

Kir-Abb: Nil: ENil: TESO -ŋurian "to complain"   [stem plus Ateker -i def. marker plus
                                                     probably old ENil incep. (*-an)]
Rub: IK ŋurúŋúr- "to talk to oneself (out of anger)"   [redup. stem as iter.]

550. *ŋùːt OR *ŋūːt   "something raised up, prominence, protruberance"
CSud: PCS *ndu "cloud"
Sah: KANURI ŋgɜ́rvó "raised wooden platform in   [stem plus NS *p extend. plus NS *w
fields, on which boys sit to scare birds"   n. deriv. suff.]
Astab: Taman: TAMA ŋoːd "horn"
Astab: Nub: DONGOLAWI nuːd, NOBIIN nùud
"ear of grain"
Kir-Abb: DINIK ŋwùṭà "nose"

551. *ŋwaːd   "to burn (intr.)"
CSud: PCS *ŋa "to burn (intr.)"
Astab: Taman: TAMA ŋɔrɔŋɔ: "ashes"   [stem plus NS *ŋ n. suff.]
Astab: Nub: DILING ŋorke "charcoal"   [stem plus probably NS *kʰ pl. suff.]
Astab: Nub: DILING ŋwart-i "to cook (porridge)"   [stem plus NS *ṭ caus.]
Kir-Abb: C.Jebel: AKA ŋaargen "yellow"   [stem plus NS *k and *n adj. suff.]
Kir-Abb: NYIMANG ŋòṛi "day"   [stem plus NS *-ih n. deriv. suff.; se-
                                  mantics: "burn (intr.)" > "shine" >
                                  "sun" > "day"]
Kir-Abb: Nil: WNil: OCOLO ŋwär "to cook
slightly, heat"

552. *ŋwéːl   "to open (tr.)"
Sah: KANURI ŋgólódɛɑ "naked"   [stem plus NS *tʰ cont. plus NS *-eh
                                   and *-ah n./adj. deriv. suff.; seman-
SONGAY ŋéelè "to open with fingers, as one opens   tics: "open" > "uncover"]
a nut"
Kir-Abb: GAAM ŋɔl- "to open"

553. *ŋwim   "forehead"
CSud: ECS *ŋwi "brain"
Sah: KANURI ŋgɜ̂m "forehead"
Kir-Abb: Surmic: DM *ŋuma "face"

554. *áŋ   "to open (intr.)"
KUNAMA aŋa- "to open"
Kir-Abb: PNil *ŋa "to be open" (ENil: MAASAI -ŋá   [Teso: stem plus Ateker itive; Kalenjin:
"to be ajar": TESO -ŋaar "to open"; BARI ŋa-a "to   stem plus NS *n dur.]
be open"; SNil: Kalenjin *ŋan "to open")
PRub *ŋaɲ "to open" (IK ŋáɲ-)   [stem plus NS *ɲ extend.]

555. *aŋw   "fly"
CSud: PCS *ŋo "fly; bee"
KUNAMA antana "fly"
Maban: MABA aɲin "flies"   [stem plus NS *tʰ and *n n. suff.]
Kir-Abb: GAAM kand, PL. kaŋg "fly"   [stem plus NS *n pl. marker (*-in)]
Kir-Abb: TEMEIN aŋwis, PL. kaŋwak "fly"
Kir-Abb: proto-Daju *aŋoRe "fly"   [stem plus NS *r n. suff.]

556. *òŋòr "elephant"

Maban: MABA ŋon, PL. ŋoni "elephant"

Astab: Taman: TAMA *ŋor "elephant" (TAMA ŋor,
    SUNGOR ŋor)

Astab: Nub: DILING oŋul "elephant"

Kir-Abb: C.Jebel *ɔrɔŋ "elephant" (AKA rrɔŋɔ,   [metathesized stem; MOLO: NS *kʰ n.
    MOLO krɔŋɔ, KELO ɔɔŋɔ)   pref. plus stem]

Kir-Abb: Surmic: DM *ɔŋɔl "elephant"   [NS *r > Surmic *R > DM *l]

PRub *oŋor "elephant" (IK oŋor)

557. *ɔŋwal "four"

FOR oŋal "four"

Kir-Abb: Surmic: MAJANG aŋan "four"

Kir-Abb: PNil *aŋwan "four"

Surma-Nilotic phonological innovations: nasal assimilation shift (NS *l > *n /VŋV_#) and *ɔ > *a /_CaC (because of vowel category shift requirements of Surma-Nilotic?)

PROTO-NILO-SAHARAN STEM-INITIAL *ŋ or *ŋg

558. *ŋaK OR *ŋgaK OR *ŋaG OR *ŋgaG   **"to grind (grain) coarsely"**
                                           [K = k, kʰ, or k'; G = g or ɠ]

Sah: KANURI ŋgáji "coarse flour"   [stem plus NS *-ih n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO ŋak "to grind coarsely"

559. *aŋɛr OR *aŋgɛr "buffalo"

Sah: KANURI ŋgáràn "buffalo"   [stem plus NS *n, *ɲ, or *ŋ n. suff.]

Kir-Abb: Nil: WNil: JYANG anyaar, PL. anyɛr
    "buffalo"

Other possible reconstructions: *aŋɛd, *aŋgɛd, *aŋɛɗ, or *aŋgɛɗ.

PROTO-NILO-SAHARAN STEM-INITIAL *p

560. *pád "to look for"

Koman: UDUK pár "to hunt"

Sah: KANURI bàrà "hunt; to look for"   [stem plus NS *-Vh n. deriv. suff.; stem
                                       plus NS *-a dispunc.; v. < n.]

Astab: Nub: DONGOLAWI bar "to sort out, select,
    choose"

Kir-Abb: Surmic: S.Surmic *kebar- "eye"   [NS *kʰ n. pref. plus stem]

561. *pà:ɗ "leather sack"

Kir-Abb: GAAM pare "bag, skin sack, leather   [stem plus NS *-eh n. deriv. suff.]
    waterbag"

Rub: IK baɗ "quiver"

This root, although known so far only from Eastern Sahelian languages, is included because it provides additional evidence on the regular consonant and vowel sound correspondences of Gaam.

562. *pál OR *pá:l "to look closely, examine"

Koman: UDUK pál "to try, test, measure"

CSud: PCS *pa OR *p'a "to look carefully at"

Kir-Abb: Nil: ENil: MAASAI -ibalá "to be conspicu-   [*i- v. class pref. plus stem plus ENil
    ous"   *-a neut. ext.]

563. *pà nd "lower back"

Koman: UDUK pāɗ "small of back"

CSud: MM: LUGBARA ápàtá "groin"   [CSud *V- n. pref. (NS *a- attrib.) plus
                                       stem plus CSud *-tV n. suff. (NS
                                       *tʰ)]

KUNAMA bada "behind"

SONGAY bándá "lower back, backbone; behind"   [stem plus NS *-Vh n. deriv. suff. (to
                                       explain tone-raising)]

Kir-Abb: Nil: PSNil [*pataʀ "back": LOAN   [stem plus NS *r n. suff.]
    (expected *par-), from perhaps Koman]

564. *pá:ŋ "to call"

Koman: Gumuz: 'GOJJAM' baŋ "to sing"

CSud: PCS *pa OR *p'a "to cry"

Astab: Nub: DONGOLAWI baɲɲ-, NOBIIN báɲɲ-   [gemin. as iter./dur.]
    "to speak, talk"

Kir-Abb: GAAM paɲɛn "singer"   [stem plus NS *n n. suff.]

Kir-Abb: proto-Daju [*ɓaŋ- "to call, name": LOAN
    (expected *p)]

Gaam reflex shows regular sound correspondences, but its uniquely shared meaning with the Gumuz attestation suggests that it may be a loan from a Koman language, or at least to have been influenced in meaning by a Koman tongue.

565. *pá:ʂ OR *pā:ʂ "to remove, take out or off, put out"

Koman: UDUK pāš "to give (salt, dates, sesame)"

Koman: UDUK pāš. . .īš "to lighten load or
    amount on shelf" (īs REFL.)

FOR faas- "to wipe"   [semantics: to remove by wiping]

SONGAY basa "être vidé" (P)

Kir-Abb: Nil: SNil: Kalenjin *pa:c "to strip off"

Rub: IK báts- "to peel, remove shell"

                                           [PRub *ʂ > IK ts /V_]

Sahelian semantic innovation: to remove so as to leave bare. Eastern Sahelian semantic innovation: to leave bare specifically by stripping off outer covering layer.

566. *pén "to be complete"

CSud: PCS *pe "to complete"

SONGAY bén "to be finished"

Kir-Abb: Nil: WNil: OCOLO bɛn "all, every"   [semantics: complete, entire > all]

567. *pér OR *péd "lower side of body"

CSud: ECS *pe "lower abdomen"

Astab: Nub: DONGOLAWI bɛri "side"

Kir-Abb: GAAM pɛbɛr "rib"   [partially redup. stem]

568. *pè:r OR *pè:d "to grow (of plants)"

Koman: UDUK pēpēr "to spread out in growth"   [partially redup. stem as extend.]

Sah: KANURI bə̀rát "to grow without rain" — [stem plus NS *tʰ cont.]
Astab: Nub: DONGOLAWI bɛːr- "to sprout, begin to grow"

569. *pɛɦ "hand"

Koman: UDUK pe- << base "five" in numerals six to nine >> — [pédé' "six" (dé' "one"), pésú' "seven" (sú' "two"), etc.]
KUNAMA bena "arm" — [stem plus NS *n n. suff.]
Sah: TUBU kɔbɛ, DAZA kɛɛ "hand" — [NS *kʰ n. pref. plus stem]
Sah: ZAGHAWA ba "hand"
SONGAY kàbè "hand" — [NS *kʰ n. pref. plus stem]

570. *pɛ̀r "to turn"

Koman: UDUK pɛr "to turn aside from path"
SONGAY bérè "to return (something), to change" — [stem plus Songay -e v. ext., probably NS *-a dispunc. plus NS *-i itive]
SONGAY bárméy "to change, exchange, covert" — [stem plus NS *m n. sff. plus NS *'y ess.-act. as denom.]
Rub: IK bɛr- "to plait hair" — [semantics: turn > twist]

571. *pɛr "to fly"

Maban: MABA ber-ire "to fly"
Maban: MABA kebelek "wing" — [NS *kʰ n. pref. plus stem (-k is Maba n. sing.)]
Kir-Abb: GAAM pərd- "to fly" — [stem plus NS *tʰ cont.]
Kir-Abb: C.Jebel *pir- "to fly" (AKA pir-, MOLO fir-, KELO pir-)
Kir-Abb: Nil: WNil: OCOLO obɛr "wing" — [NS *o- n. deriv. pref. plus stem]

572. *kʰipɛr "bird" [NS *kʰ n. deriving pref. plus root 571]

Sah: TEDA kebri "bird"
SONGAY círów "bird" — [metathesis: *kibar > *kirab; then by regular Songay shifts > *kiraw > *ciraw ([cirow])]
Astab: NARA kɛrba "bird" — [metathesis: *kibɛr > *kɛrib-]
KIr-Abb: Surmic: S.Surmic *kibaR- "bird" (DM *kibal-; KWEGU kubər) — [S.Surmic *R > DM *l]

This entry implies the existence of the verb root 571 farther back in Nilo-Saharan history, to at least the Saharo-Sahelian threshhold, that the direct attestions of the verb itself can yet support.

573. *pí "to come along"

Koman: UDUK pí "to come out"
KUNAMA -b- "to accompany"
Astab: Nub: DONGOLAWI bida:- "come" — [stem plus -da:-, Dongolawi suff. element of verbs of ongoing motion (NS *tʰ cont. plus NS *-a dispunc.?)]
Kir-Abb: PNil *bi- "come!" (WNil: OCOLO bi; ENil: TESO bia; etc.)

574. *pìd OR *pɪ̄d "to descend, go down"

CSud: PCS *pi "to lie (down)"

Sah: KANURI bárál "ideophone of falling down on hard surface" — [stem plus NS *l iter. (> intens. in Kanuri]
Sah: KANURI bárát "ideophone of falling down simultaneously" — [stem plus NS *tʰ cont. (as plurac.?)]
Kir-Abb: GAAM pɪri "to fall from one's grasp" — [stem plus NS *-i itive]
Kir-Abb: BERTHA bɪd- "to fall (of rain)"
Kir-Abb: BERTHA [p'iliyu "deep": LOAN from language in which *p retained and NS *d > r /V_ (Koman?)] — [stem plus NS *'y n./adj. deriv. suff.; borrowed after /p/ lost in Bertha (hence its realization as /p'/) and before *r > l /V_ in Bertha]
Kir-Abb: Nil: ENil: TESO -biror "to fall, fail" — [stem plus Teso itive]

Saharo-Sahelian semantic innovation: specialization of the meaning of the verb to an abrupt kind of descent, "to fall."

575. *pí ḍ "to gather (tr.)"

CSud: ECS *pi "to gather (especially grain)" (BALEDHA pi̋; MANGBETU ne-kí pí "granary") — [Mangbetu: NS *kʰ n. pref. plus stem]
Sah: KANURI bə̀rá "granary" — [stem plus NS *-ah n. suff.]
FOR fer "granary" (B) — [probable /fir/: see von Funck 1986 for For allophonic variations]
Astab: Nub: DONGOLAWI bitt- "to pick up, gather, gather up (e.g., grain)" — [*birt-, stem plus NS *tʰ cont. (with regular Dongolawi *rt > tt assim.)]
Kir-Abb: Nil: WNil: OCOLO bɪt̪ "to gather together, of things scattered"
Kir-Abb: Nil: WNil: OCOLO [pit "to collect a debt, dun": LOAN, probably from Koman] — [NS *p > p, *ḍ > *ɗ /_# (> *t in OCOLO borrowings) are regular in Sn Koman, but not in Ocolo]

Saharo-Sahelian innovation: derivation of a noun for "granary" from this verb, probably by addition of Nilo-Saharan *-ah noun deriving suffix still present on the surface in the Kanuri reflex. The application of this root in Central Sudanic to the gathering together especially of grains suggests that this verb originally referred to food gathering activities. Certainly by the Saharo-Sahelian stage, it had come to apply to cultivated grain collected for storage, as the derivation of the noun "granary" requires. The borrowed verb form in Ocolo provides an indirect attestation of an earlier more general meaning, probably in the Koman branch, because the Ocolo form has a shape typical of a Koman source language just like others of the numerous Koman loanwords in Ocolo.

576. *pɪ̄ːd "to take out of, separate out, put apart"

Koman: UDUK àpíjè' "outside" — [NS *a- attrib. pref. plus stem plus NS *-eh n./adj. deriv. suff.]
CSud PCS *pi, *api "to send (away)" — [CSud *V- pref. (*a- tr.) plus stem]
KUNAMA biši- "to part, scatter, squander"
KUNAMA bišika- "to part, scatter" — [stem plus NS *kʰ intr. plus NS *-a dispunc.]
Sah: KANURI bís "to perform magic on, harm" — [semantics: to take away a person's health, good fortune, etc.]
Astab: Nub: DILING bij "to pull out, pick, pluck"
Kir-Abb: GAAM pid "(take) by force"
Kir-Abb: Nil: WNil: OCOLO bic "to squeeze, wring out, press"
Rub: IK bíz- "to press out"

Eastern Sahelian semantic innovation: narrowing of the action of the verb from more general taking out or away to removal by gripping with the hand or fingers.

577. *pìr   "to wipe"

Sah: KANURI bə̀rə́n "to rub"   [stem plus NS *n dur.]

Astab: Nub: DONGOLAWI bird "broom"   [stem plus NSud *t̪ n. deriv. suff.]

Kir-Abb: GAAM pìr- "to dust off"

Kir-Abb: Daju: NYALGULGULE piɬ-ša "to rub"   [stem plus NS *θ intens. (NS *θ > Daju
                                               *š)]

578. *píːr   "to shake (tr.)"

Koman: UDUK pír "to shake (as rug)"

Koman: UDUK pír. . .ìš "to exercise oneself" (ìs
     REFL.)

CSud: PCS *pi "to stir up"

KUNAMA bili-, biri- "to tremble"

Kir-Abb: GAAM purug "restless, uneasy"   [stem plus NS *k adj. suff. (*pirug,
                                               with regressive V assim.]

Kir-Abb: Nil: ENil: BARI ɓirwe' "to have convul-   [stem plus Bari ven. (-we')]
     sions"

Proposed Northern Sudanic semantic innovation: shift from transitive to intransitive application of
verb.

579. *pís OR *pìs   "little, slight"

Koman: UDUK pìsápìs "small, not grown yet, not   [adj. by redup. stem]
     large in amount"

Koman: GUMUZ mpisɛma "thin"   [stem with double affixation of NS *m
                                               adj. affix, as commonly in Gumuz]

CSud: ECS *pi "small"

Kir-Abb: BERTHA [p'íːp'ìs'ì "narrow": LOAN,   [adj. by partially redup. stem; borrowed
     probably from Koman language]   after /p/ and /s/ lost in Bertha (hence
                                               realizations respectively as [p'] and
                                               [s']); see also root 574, among oth-
                                               ers for this pattern in Bertha borrow-
                                               ings]

Kir-Abb: Nil: WNil: OCOLO obïti "a little"   [NS *o- n./adj. deriv. pref. plus stem]

580. *píṣ   "to go out"

Koman: UDUK píš "to go away in anger or grief, to
     run away, to flee"

SONGAY bìsà "to proceed, go forward"   [stem plus NS *-a dispunc.]

Kir-Abb: NYIMANG abìsà, DINIK ibísa "urine"   [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Daju: LIGURI -bist- "to flow, run"   [< *-pist-, stem plus NS *tʰ cont.]

Kir semantic innovation: A narrowing of the application of the verb from the going out of anything
to the running out of liquid is attested in the Nyimang and Daju reflexes.

581. *pìt̪   "to rise"

CSud: ECS *pi "to increase, make more, make full,
     complete"

KUNAMA bido- "to rear up (of animal)"

SONGAY bìtà "to be thick, pasty; porridge"   [stem plus NS *-a dispunc.; semantics:
                                               "to rise" > "to swell" (of porridge as
                                               it thickens); n.: stem plus NS *-ah n.
                                               deriv. suff., or < v.?]

Astab: Nub: DONGOLAWI bitaːn "child, offspring,   [stem plus NS *n n. suff.; semantics:
     son, fruit, seed"   "rise" > "grow, grow up"]

Kir-Abb: BERTHA bìd- "to fly"

Kir-Abb: PNil [*pit̪ "to grow" (WNil: OCOLO pit̪
     "to raise, rear, grow"; SNil: AKIE pit "to grow"
     (of plants)"): LOAN from language in which NS
     *p > *p (Koman?)]

PRub *ibit- "to grow" (IK íbit- "to grow": SOO   [*i- v. class pref. plus stem; SOO: adds
     ibitac- "to grow (of person)")   SOO -ac ven.]

Possible shared semantic innovation tying Astaboran and Rub together as a subbranch of Eastern
Sahelian: shift of meaning from "to rise" to "to grow."

582. *póːkúːr OR *póːkʰúːr OR *póːk'úːr   "wooden vessel"

Sah: KANURI búgúr "wooden dish one eats from"

Kir-Abb: GAAM pɔ́ɔ́r "boat"

Kir-Abb: Surmic: DM *kobokul "canoe"   [NS *kʰ n. pref. plus stem; NS *r >
                                               Surmic *R > DM *l]

Apparent Kir-Abbaian innovation: reapplication of the root to a wooden vessel for travel on water,
presumably originally a dugout canoe.

583. *pol   "to grow"

Koman: UDUK pólõš "to swell, of seeds when   [stem plus UDUK -š ext. (NS *ṣ caus.)]
     about to sprout"

Maban: MIMI bol "many"

Astab: Taman: TAMA boleyit, PL. boleyɛ "youth"   [stem plus NS *y n. suff.; semantics:
                                               boy grown up or grown large]

Kir-Abb: PNil [*pol "much" (PWNil *pol "many";
     ENil: TESO -pol "big"): LOAN from language in
     which NS *p > *p]

Kir-Abb: Nil: ENil: proto-Maa *-bol-u "to sprout"   [stem plus NS *-uh ven., with opposite
     (SAMPURU -boló, MAASAI -bulʊ)   V assim. in Sampuru and Maasai]

584. *poːr   "to come apart, fall apart"

KUNAMA burku- "to be uprooted, break, burst"   [stem plus NS *kʰ iter. (> intens.?)]

Sah: KANURI bə́rdə́k "ideophone of scattered piled   [stem plus NS *tʰ cont. plus NS *kʰ
     quantities"   iter.]

Astab: Nub: DONGOLAWI boːr "to fall down, col-
     lapse"

Kir-Abb: GAAM pord- "to rip, tear"   [stem plus NS *t̪ caus.]

585. *pók   "to beat, hit repeatedly"

Sah: KANURI bák "to beat"

SONGAY bágá "to break, smash"

Kir-Abb: GAAM paa- "to pat, clap hands" (*pag-)

Kir-Abb: proto-Daju *pog- "to fight"

Kri-Abb: Surmic: MAJANG bokot- "to kill"   [stem plus NS *tʰ cont.]

586. *pór   "to become liquid, flow"

KUNAMA bori-, boli- "to liquify, melt"

Kir-Abb: GAAM pə́rd- "to fill"   [stem plus NS *t̪ caus.]

Kir-Abb: BERTHA bə́rθ- "to milk"   [stem plus NS *ṣ caus.; V outcome
                                               needs further explanation, though]

Kir-Abb: Daju: LIGURI pox "river"   [LIGURI pox < proto-Daju *poR-]

587. *pɔris   "to flow strongly"   [root 586 plus NS *s prog.]

KUNAMA bɔrsɔ- "to vomit"

Astab: Nub: DONGOLAWI barisk- "to vomit"   [stem plus NS *k intens.]

Kir-Abb: Daju: NYALA bɔrso "to flow" (*-pors-)

588. *pɔ́:ṣ   "to spoil (intr.)"

Koman: UDUK póš "to spoil, of grain"

Sah: KANURI bòskù "to refuse success, make fail"   [stem plus NS *k caus. plus NS *-uh ven.]

Kir-Abb: Nil: proto-Luo *buɔc "to become sterile" (OCOLO bɔc; LUO buɔc "ox, steer")

Rub: IK ɪbɔts- "to curdle (of milk)"   [*i- v. class pref. plus stem; possible loan: expected *-bóts-?]

589. *pɔ́ṱ OR *pɔ́ṱʰ   "to peel"

CSud: PCS *pɔ "to peel"   [alternatively this may be the same root as that cited in 669]

Kir-Abb: GAAM pəɬən- "to peel"   [stem plus NS *n dur.]

Kir-Abb: PNil [*pot "to rub off" (WNil: NAATH pwɔt "to husk"; ENil: BARI pod-du "to clean (by rubbing)"): LOAN from language where NS *p > *p (Koman?)]

Kir-Abb: Nil: ENil: TESO [-pɔar "to strip off": LOAN, from CSud *pɔ]   [CSud stem plus Ateker itive]

Kir-Abb: Nil: ENil: BARI ɓöt "to skin"

Rub: IK bót- "to peel (pumpkin)"

Other possible reconstructions: *pɔ́ṱ, *pɔ́ṱʰ, *pɔ́:ṱ, *pɔ́:ṱʰ, *pɔ́:ṱ, or *pɔ́:ṱʰ.

590. *pɔ́:w   "bright, bright-colored, especially white or yellow"

Koman: Gumuz *mpu:ma "white"   [stem with double affixation of *m adj. affix (as commonly in Gumuz)]

CSud: MM *fɔrɔ "yellow"   [stem plus CSud *-rV adj. suff. (NS *r)]

CSud: MM: LUGBARA fòò "brightly shining"

FOR fuwa "yellow"   [stem plus NS *-ah n./adj. deriv. suff.]

FOR fàttá "white"; futa "white" (B)   [stem plus NS *tʰ or *ṱ n./adj. suff.]

Kir-Abb: GAAM pɔ́ɔ(n) "white"   [stem (plus NS *n modif. suff.)]

Kir-Abb: C.Jebel *pɔ "white" (MOLO fɔ, KELO bɔ)

Kir-Abb: BERTHA [(M) fù:dí, (F) fɔ̀di "white": LOAN, probably from Gaam group (expected *b for /f/)]   [stem plus NS *t adj. suff.; borrowed after NS *p > BERTHA b, but before NS *pʰ > BERTHA f]

Kir-Abb: Nil: WNil: NAATH bɔyɛ "white; bright"   [stem plus NS *'y n./adj. suff.]

Kir-Abb: Nil: ENil: BARI [lopowe "white": LOAN (expected *bɔw-)]   [Bari *IV- adj. deriv. pref. (NS *l) plus stem]

591. *pú OR *pū   "edible small seed"

Koman: UDUK àpū "sesame"   [NS *a- n. deriv. pref. plus stem]

CSud: PCS *pu "grain (generic)"

592. *pú: OR *pú:h   "to deny"

CSud: ECS *pu "to refuse"

Sah: KANURI bú "to cheat"   [semantics: "deny" > "lie about doing" > "cheat"]

FOR fiye "false"   [stem plus NS *'y n./adj. suff.]

Kir-Abb: GAAM pud- "to deceive, swindle, tell lie"   [stem plus NS *ṱ caus.]

Kir-Abb: Nil: PWNil *buṱ "to deceive"   [stem plus NS *ṱ caus.]

Other possible reconstructions: *pū: or *pū:h. Saharo-Sahelian semantic innovation: specialization of the meaning to a particular kind of denial, lying. Kir-Abbaian morphological innovation: addition of Nilo-Saharan causative in *ṱ to stem to create the transitive meaning "to deceive."

593. *pừd OR *pūd   "to burn (tr.)"

Koman: UDUK pūr "to singe, burn"

CSud: WCSud: Bongo-Bagirmi [*pɔdu "fire": LOAN from extinct Kado-related language]   [borrowing from ancient Kado language, which in turned borrowed the word from ancient Temein; see note]

SONGAY búrbúrè "to roast in ashes"   [redup. stem plus Songay ext. -e (proposed NS *a dispunc. plus NS *-i itive]

Astab: Nub: DONGOLAWI oburti, NOBIIN ùbúrtí "ashes"   [NS *o- attrib. pref. plus stem plus NS *tʰ n. suff.; Nubian *obt- "ashes," despite its resemblance, must be derived from a distinct root, 1582]

Kir-Abb: TEMEIN pɔdiŋ "fire"   [stem plus NS *ŋ n. suff.]

Kir-Abb: Surmic: S.Surmic: MURSI bừréni "hot"   [stem plus NS *n modif. suff.]

Kir-Abb: Surmic: SESurmic *abur- "hot"   [NS *a- n./adj. deriv. pref. plus stem]

Kri-Abb: Nil: SNil: Kalenjin *purke "hot"   [stem plus NS *k adj. affix]

Eastern Sahelian semantic innovation: A shift in meaning from transitive to intransitive "to burn" is implied in the Nubian and Temein derived nouns (each < "to burn (intr., of fire)" and in the Surma-Nilotic reflexes. Surma-Nilotic semantic innovation: A further shift in meaning of the underlying verb from "burn (intr.)" to "be hot" is evident in the derived Surmic and Nilotic adjectives. The proto-Bongo-Bagirmi borrowed word for "fire" stems ultimately from an ancient Temein-related language, but had to have passed intermediately through a Kado (Kordofanian) language. The reason is that the early Kado languages shifted the articulation of the second consonant to implosive *ɗ because that was their only alveolar voiced stop. Since proto-Bongo-Bagirmi had both *ɗ and *d, it would have taken the word as *pɔdu if it had got it directly from Temein; but as it instead has *pɔdu, the word must have come to it through a Kado language.

594. *pừd   "ash"   [n. derivative of root 593, possibly by tone shift]

CSud: ECS *pu "ash"

SONGAY búròw "ash"   [stem plus NS *w n. suff.]

Kir-Abb: BERTHA bừbừda "ash"   [partially redup. stem]

Kir-Abb: Surmic *bur "ash"

Kir-Abb: Nil: proto-Luo *bur "ash"

It is not clear whether the derivation of this noun from verb root 593 involved tone shift or some other process.

595. *púmp   "to smell (intr.)"

Sah: KANURI bábát "to smell good"   [stem plus NS *tʰ cont.]

SONGAY fúmbú "to smell of rottenness, be stinking"   [dissim. of 1st of consecutive *p to *pʰ in pre-Songay accounts for /f/]

Kir-Abb: Nil: ENil: TESO [-pup "to listen, hear, understand": LOAN from Wn Rub]

Rub: SOO búb "to feel, hear"   [semantics: "smell (intr.)" > "smell (tr.)" > "to sense other than by seeing"; for ancient NS semantic linkage of smell/hear/feel, i.e., sense other than with eyes, see root 411]

596. *pwákʰ   "to separate (tr.), take apart"
[stem *pwa- seen in root 597 plus NS *kʰ iter.?]

Koman: UDUK pwákʰ bwǎ "to divide into shares"
(bwà "in")
CSud: PCS *pɔ "to tear, split"
KUNAMA bokoro- "to divide, open wide"   [stem plus NS *r iter. (as intens.?)]
FOR fògò "naked"   [stem plus NS *-Vh n./adj. deriv. suff.]
Kir-Abb: Nil: ENil: BARI ɓög-gu "to bark (a tree)"
Kir-Abb: Nil: ENil: BARI [pög-gu "to divide in
parts": LOAN from language in which NS *p > *p
(here probably Koman)]

Sahelian semantic innovation: The For and the cognate Bari forms evince a shift to a particular kind of separating—removal of the covering layer from something. The borrowed Bari form of the root is most probably derived from a Koman source because its meaning replicates that found in the Uduk reflex.

597. *pwá:θ   "to break" [stem *pwa- seen in root 596 preceding plus NS *θ intens.?]

Koman: UDUK pwás, pwát̞ʰ "to be broken"
KUNAMA baše-, beše- "to break (tr.)"
Sah: KANURI kàvásè "frangible"   [NS *kʰ n./adj. pref. plus stem plus NS *-Vh n./adj. deriv. suff.]
Kir-Abb: BERTHA [fə́š- "to break": LOAN from language in which NS *p > *p (Koman or Gaam)]   [borrowed after *p > BERTHA b, but before *pⁿ > BERTHA f]

PROTO-NILO-SAHARAN STEM-INITIAL *p or *b

598. *ó:pìɗ OR *ó:bìɗ   "rhinoceros"

CSud: MM: LUGBARA [óbbíró, ábío
"rhinoceros": LOAN or chance resemblance
(expected CSud *-pi)]
CSud: WCSud: BAGIRMI [birni "rhinoceros":
LOAN from Saharan language]
Sah: KANURI bə̀rnyí "rhinoceros"   [stem plus NS *n n. suff.]
Kir-Abb: Nil: ENil: MAASAI [ɛnk-óbílɔ "smaller
kind of rhinoceros, with short horn": LOAN,
probably from CSud (expected *obir-)]
Kir-Abb: Nil: PSNil *ó:píria "rhinoceros"   [stem plus NS *'y n. suff. (SNil *-iɑ)]
Rub: IK óbi'j "rhinoceros"

PROTO-NILO-SAHARAN STEM-INITIAL *p or *b or *ɓ

599. *pɔhin OR *bɔhin OR *ɓɔhin   "nose"
[partially redup. stem]

KUNAMA bobona "nose"
Maban:MABA ɓoin, PL. ɓointu "nose"

PROTO-NILO-SAHARAN STEM-INITIAL *pʰ

600. *pʰáɗ   "to strip, tear off (outer layer)"

Koman: UDUK pʰămpārà' "chaff of beans or maize"   [partially redup. stem as iter. (for action of removing chaff), with regular Uduk epethetic insertion of -N-, plus NS *-Vh n. deriv. suff.]
Koman: UDUK àpʰămpārà' "scale of fish"   [NS *a- n. deriv. pref. plus preceding Uduk n.]
KUNAMA farašo- "to expose"   [stem plus NS *θ intens.]
Sah: KANURI fə́l "to break open"
Sah: KANURI fàláí "to reveal, expose" (H)   [stem plus NS *-a dispunc. plus NS *-i itive, added since *d > l/_#]
FOR faar "long-handled hoe"   [V > V: /#C_r# as a For nomin. formative appears also in root 1385]
SONGAY fárú "to cultivate"   [stem plus NS *-uh ven.]
SONGAY fárí "field"   [stem plus NS *-ih n. deriv. suff.]
Kir-Abb: Nil: ENil: ONGAMO -iβár "to cultivate"
(possible loan from SNil?)   [*i- v. class pref. plus stem]
Kir-Abb: Nil: PSNil *pár "to cultivate"
Rub: IK fád (fadó-) "pangolin shell"   [stem plus NS *w n. suff.; semantics: as in Uduk "scale of fish" above]

Sahelian semantic innovation: A technical specialization of the simple verb to the clearing of fields for cultivation and then to cultivation in general ("to strip, tear off" > "to clear a field" > "to cultivate") is apparent in the Songay, For, and Nilotic reflexes.

601. *pʰà:g OR *pʰà:ɟ   "to divide up (intr.)"

KUNAMA fagade- "to divide into shares"   [stem plus NS *t̞ caus.]
SONGAY fáajì "to be alone, isolated"   [stem plus NS *-ih n./adj. deriv. suff.; v. < earlier adj.]
Astab: PNub *fa:g "to divide (into shares)"
(DONGOLAWI ba:g, NOBIIN fagg-)
Kir-Abb: Nil: WNil: OCOLO päk "to divide, share"
Rub: IK [pak- "to split, cut a calabash into two bowls": LOAN (expected *fag-)]

Eastern Sahelian semantic innovation: shift of verb from intransitive to transitive application without visible morphological addition.

602. *pʰàh   "leg/foot"

Koman: UDUK àpʰpʰá' "sandal, shoe"   [NS *a- n. deriv. pref. plus stem]
CSud: ECS *pa "leg/foot"

603. *pʰāl   "pole, large stick"

Koman: UDUK àpʰālācʰ "wooden throwing stick, dancing stick"   [NS *a- n. deriv. pref. plus stem plus NS *tʰ n. suff.]
CSud: ECS *pa "wood"
KUNAMA falaka "entirety of poles, straw, etc., of house, wall"   [stem plus NS *kʰ pl. suff. as coll.]
SONGAY fàlà "beam"

Apparent Northern Sudanic semantic innovation: narrowing of application of this root to poles used in house building.

604. *pʰâl̩   "to grab, snatch up (for oneself)"

CSud: MM: LUGBARA pa "to snatch from, obtain
  possession by intrigue or force"
KUNAMA falu- "to eat greedily"   [stem plus NS *-uh ven.?]
Astab: Nub: DILING hal-ir "to become greedy"   [stem plus Nubian caus. in *r (as de-
                                            nom.?)]
Rub: IK fal- "to miss food, lack food"   [semantics: greedy > desiring food be-
                                            cause of a lack of it]

Other possible reconstructions: *pʰàːl, *pʰàːl̩, *pʰâl, *pʰâl̩, *pʰâːl, or *pʰâːl̩. Northern Sudanic innovation: shift of focus of the verb from the concrete action of snatching up to the motivation of greed, especially for food, behind that kind of action.

605. *pʰãnt OR *pʰãnt'   "woven winnowing tray"

SONGAY fèndù "winnowing basket"   [stem plus NS *-u n. sing. marker]
Kir-Abb: Nil: WNil: NAATH pɑt "grass tray to   [*ant > PNil *aːt > NAATH ɑt by regu-
  shake pounded dura in"   lar sound shifts]

606. *pʰãnt̩   "to come alongside, come against or right up next to"

KUNAMA fataka- "to put across (as bar on door)" [stem plus NS *kʰ iter. (?)]
Sah: KANURI fátk "to bring near, put against"   [stem plus NS *k caus. added since NS
                                            *NT > T /_# in Kanuri]
SONGAY fèndì "to come alongside"   [stem plus NS *-i itive]
Kir-Abb: Nil: WNil: OCOLO pac "to glance off,
  graze"

607. *pʰaŋ   "to blow (with mouth)"

CSud: WCSud *apa "to blow"   [CSud *a- v. pref. plus stem]
KUNAMA faŋi- "to gasp, fight for breath"
Kir-Abb: GAAM fəŋen- "to breathe, pant" [stem plus NS *n dur.]

Possible Northern Sudanic semantic innovation: A shift of application from exhaling to inhaling of air is assumed by the semantic reconstruction chosen here.

608. *pʰár   "to call out"

KUNAMA farana "noisy laughter"   [stem plus NS *n n. suff.]
Sah: KANURI fór "to slander"   [semantics: to call out > yell out slander-
                                            ous things]
SONGAY fàrgárà "thunder; to thunder"   [stem plus NS *k intens. plus NS *r n.
                                            suff. (with v. < n.)]
Kir-Abb: GAAM fór- "to greet"
Kir-Abb: Nil: WNil: NAATH par "to mourn"
Kir-Abb: Nil: ENil: MAASAI -ɪpárr "to ask"

609. *pʰar OR *pʰaːr   "bright"

KUNAMA fallada "glitter, sparkle"   [stem plus NSud *t̩ n. suff.; case of
                                            Kunama ll ~ r alternance in which *r
                                            alternant is not yet recorded]
Maban *pʰapʰar "white" (MABA fafarak, RUNGA [partially redup. stem at least in Maba;
  farr)   Maba: adds MABA -k sing. marker]
Kir-Abb: NYIMANG fɛfɛr "very white"   [partially redup. stem; V fronting is not
                                            yet explained by regular rule]
Kir-Abb: proto-Daju *papaR- "white"   [partially redup. stem]
Kir-Abb: Nil: PENil [*paran "day(time)": LOAN [stem plus NS *n n. suff.]
  (expected *-parran)]

Sahelian semantic and morphological innovation: development of the meaning "white" with ac-
companying partial reduplication of the stem. The Runga reflex does not currently show this op-
eration, but so little is known of this language that the possibility of a regular contraction of a pre-
Runga shapes in *CaCar to *Car- cannot be ruled out.

610. *pʰàːr   "to run away"

Koman: UDUK pʰăr šŏk' "to race" (šŏk' "foot")
CSud: MM: LUGBARA pa, apá "to flee, escape"
KUNAMA fara- "to run rapidly to right and left"
Sah: KANURI fàr "to jump, dance, fly"   [stem plus NS *-a dispunc.?]
Astab: Taman: TAMA faːr- "to jump"
Kir-Abb: Nil: PWNil *paːr "to jump, fly, flee"
  (OCOLO pär "to fly, jump, run away, flee";
  JYANG paar "to fly")

Saharo-Sahelian semantic innovation: shift of meaning from "to flee" (run away) to "to fly" (and hence "to jump"). Ocolo seems to preserve the older sense as well as share in the innovation. But since numerous Koman loanwords attest to strong Koman influences on the early Luo (as many instances in this dictionary show), the probable explanation is that the Koman example (cf. the Uduk entry here) has exerted semantic influence on the Ocolo form, reintroducing the earlier sense into its range of meanings.

611. *pʰàːtʰ   "to become lost"

Sah: KANURI fát "to be(come) lost"
SONGAY fáttá "to leave; to resign"
                                        [tr. sense by *fat-d-, stem plus NS *t̩
                                            caus., with devoicing assim. to pre-
                                            ceding *t (< NS *tʰ)]
Kir-Abb: Nil: WNil: OCOLO pät "to depose, lose
  position"

Sahelian semantic innovation: Songay and Ocolo both add a technical application of this root, us-
ing it in the specialized sense of losing an office or position in society.

612. *pʰàːy   "to burn (intr.)"

CSud: PCS *pɛ "to burn (intr.)"
SONGAY féemè "hearth"   [stem plus NS *m n. deriv. suff.]
Astab: NARA feta "moon"   [stem plus NS *tʰ n. suff.]
Kir-Abb: GAAM féédɔ́l "early morning before sun-   [stem plus NS *tʰ and *l n. suff.]
  rise"
Kir-Abb: Nil: WNil: NAATH pɛt "to burn" [stem plus NS *tʰ cont.]
Rub *pay "to burn (tr.)" (SOO pey "to roast, burn";
  IK fa-, fe-és "to cook meat and white ants")
Rub: IK fet "sun"   [stem plus NS *tʰ n. suff.]

Eastern Sahelian innovation: A common derivation of a noun *paytʰ, stem plus Nilo-Saharan *tʰ noun suffix, for "light (in the sky)" can be seen Nara "moon," Gaam "early morning," and Ik "sun." Eastern Sahelian semantic innovation: A shift of the underlying verb from intransitive to transitive usage appears in both Nilotic and Rub subgroups. The derived Eastern Sahelian noun, in contrast, must have been coined before this shift because it implies the original intransitive meaning.

613. *pʰáːy   "to separate forcefully or suddenly (tr.)"

CSud: ECS *pɛ "to pluck, cut off, remove"
KUNAMA faita- "to cast off; to spring, go off (e.g.,   [stem plus NS *t' iter. intens.]
  of trap)"

Sah: KANURI fái "strange, rare"

SONGAY féy "to separate, divide, divorce"
Astab: Nub: NOBIIN fáay- "to kill"

[stem plus NS *y n. suff.; semantics: separated, isolated, hence, different and thus "strange, rare"]

[Bechhaus-Gerst 1984/5 counts DON-GOLAWI bɛ: "to kill" as cognate, but that word is a distinct root cognate instead with MIDOB per "to kill" (see root 678)]

Kir-Abb: NYIMANG fèi, fɛɛ "to divide"

It is tempting to attribute the Nobiin reflex to root 670 below, but the lack of regular correspondence, except in the first consonant, rules out that possibility.

614. *pʰá'yθ   "to separate out rubbish, separate grain from chaff"
[root 613 plus NS *θ intens.]

Sah: KANURI fés "to winnow, shake to sort"
SONGAY fésè "to pick out, sift, clean"
SONGAY fésfésè "to gin cotton"

[redup. stem as iter.]

Astab: Nub: DONGOLAWI bɛːs "to comb"
Kir-Abb: BERTHA fé:θ- "to clean, sweep"
Kir-Abb: Nil: proto-Luo *pɪɛt̪ "to winnow"
Kir-Abb: Nil: ENil: TESO [-pɪɛt "to winnow": LOAN from Luo (WNil diphthong)]
Rub: SOO pɛθat, PL. pɛθ "bark"

[semantics: to remove chaff > n. "chaff" > "rind, hull," in general > "bark"]

615. *pʰè   "fat (n.)"
KUNAMA fata "fat (n.)"
KUNAMA fatina "fat (adj.)"
Sah: KANURI fê "cow"

[stem plus NS *tʰ n. suff.]
[Kunama n. plus NS *n modif. suff.]
[proposed semantics: "fat (of animal)" > "meat" > "cow (as source of meat)"]

Kir-Abb: C.Jebel: MOLO fie "meat"
Rub: IK ɛf "fat (n.)"

[stem plus NS *'y n. deriv. suff.?]

If the semantic history proposed for the Kanuri reflex is correct, Molo and Kanuri provide a possible counterindicator of Rub's membership in Saharo-Sahelian.

616. *pʰéɗ   "to pluck out"
CSud: PCS *pe "to pick, pluck"
Sah: KANURI fért "to pull out (feathers, hair)"

[stem plus NS *tʰ cont.]

Kir-Abb: Nil: WNil: OCOLO pyɛt "to pull grass with hands"

617. *pʰèɖ   "to loosen, undo"
Koman: UDUK pʰēɗ "to let down, loosen, undo"
CSud: PCS *ɛpe "to open"
Sah: KANURI fərám "to open"
Astab: Nub: DONGOLAWI bɛu "to unravel, untwist, unwind"

[CSud *V- pref. plus stem]
[stem plus NS *m iter. concis.]
[*r > Ø /#CV_-# (full environment uncertain) is regular Dongolawi shift; stem plus NS *-uh ven. (?) after *r > Ø]

Kir-Abb: GAAM fɔ̀ɬ- "to untie"

618. *pʰéːɗ   "to stand"
Koman: UDUK pʰéɗ "to stand"
Koman: Gumuz: SAI fəɗa "to rise"
CSud: MANGBETU -èépíra "to remain a long time, last"

[CSud *V- pref. plus stem plus CSud *r plurac. (NS *r iter. > dur. action)]

Sah: KANURI fóré "to emerge"
Astab: Nub: DILING ɦej "to wake up"
Kir-Abb: BERTHA fé:ɗ- "to want, look for, hunt"

[stem plus NS *'y ess.-act.]
[PNub *f > DILING ɦ]
[semantics: "stand" > "stay" > "wait (for)," hence "watch, look for," etc.]

Kir-Abb: BERTHA [p'eːl- "to stand, wait": LOAN from language in which NS *pʰ retained and NS *ɗ > *d (> r /V_)]

[borrowed after NS *pʰ > Bertha /f/ and *p > /b/ (thus realization as only remaining Bertha voiceless labial /p'/) but before *r > Bertha /l/]

Kir-Abb: NYIMANG fɛɗìn "to find"

[stem plus NS *n dur.; semantics as in Bertha reflex]

Kir-Abbaian semantic innovation: shift from "stand (still)" > "wait (for)" > "want, seek," with further shift to the result of seeking, "find," in Nyimang.

619. *pʰèh   "to speak out"
CSud: ECS *ape "to answer"
SONGAY fê "to proclaim"
Astab: Nub: DILING fe "to speak"

[CSud *V- v. pref. (*a- tr.) plus stem]
[Nubian *f > Diling /ɦ/ in all environments except /#_V#/]

Kir-Abb: Nil: SNil: NANDI ipe "to quarrel with"

[*i- v. class pref. plus stem]

620. *pʰél   "to reveal"
Sah: KANURI fə́lá "to show"
SONGAY féllè "to watch with curiosity, to find out by watching"
Kir-Abb: GAAM fɛl- "to give away secrets"
Rub: IK [pɛlɛ́m-ɛt- "to arrive, appear, rise": LOAN (expected *fɛɬɛ́m-)]

[stem plus NS *'y ess.-act.]

[stem plus NS *m iter. conc. as intr. plus IK ven.]

621. *pʰénɬ   "to forsake, abandon"
Sah: KANURI fə́t "to give up hope after waiting"
SONGAY féndà "to leave, forsake, abandon, avoid"
Astab: NARA fit "to go astray"
Kir-Abb: NYIMANG fìɗɛŋ "to be absent"
Kir-Abb: Nil: SNil: NANDI ipet "to lose"

[stem plus NS *-a dispunc.]

[stem plus NS *ŋ punc.]
[*i- v. class pref. plus stem]

622. *pʰér   "to scratch off (with paws, claws, fingers)"
Sah: KANURI fórà "to sweep up"
Sah: KANURI fárgàmì "nail, claw"

[stem plus NS *-a dispunc.]
[stem plus NS *kʰ iter. plus NS *m n. suff.]

FOR ferdel "cow track" (B)

[stem plus NS *tʰ cont. plus NS *l or *ɬ n. suff.; semantics: "hoof marks (on ground)" > "cow track"]

SONGAY féférí "to descale fish"

[partially redup. stem as iter. plus NS *-i itive]

Maban: MIMI fer "nail, claw"
Kir-Abb: GAAM fərən- "to remove fur, rub off"
Kir-Abb: Daju: NYALA pəryuce, PL. pəryuge "heel"

[stem plus NS *n dur.]
[stem plus NS *y n. suff.; semantics: "claw" > "hoof" > "heel"]

Kir-Abb: Surmic: DM *fəley- "nail, claw"

[stem plus NS *y n. suff.; NS *r > Surmic *R > DM *l]

It is tempting to reconstruct a Sahelian root for "nail, claw" from the evidence of Mimi (Maban), Daju, and Surmic. But the separate derivational morphology of the different derivative nouns bearing that meaning favors two independent coinages: Mimi of Maban probably by tone shift in the simple verb, and Daju ("claws" > "hoof" > "heel") and Surmic via a common Kir innovation, adding the Nilo-Saharan noun deriving suffix in *y to the simple verb. The Kanuri word for "nail, claw" seems derivable by still different suffixation from an extended shape of the verb.

623. *pʰeːr   "herd (of cattle), cattle (coll.)"

Saharan *fir- "cow; cattle" (ZAGHAWA hirri, BERTI firr; etc.)

[not the same root as in KANURI fê "cow," for which see root 615]

Kir-Abb: Nil: SNil: Kalenjin *peːʀ "cattle pen"

[semantics: "cattle herd" > place where cattle kept]

624. *pʰéw   "to grow (especially of plant)"
KUNAMA fau- "to grow, increase"
KUNAMA faula "vegetation"

[stem plus NS *l n. suff.]

Sah: KANURI fáfá "to grow by creeping"

[*féw > pre-Saharan *fɔ́ > KANURI /á/ (realized regularly as [á] /C_#), redup. as iter. or extended action]

SONGAY féw "to sprout"
Astab: NOBIIN féyy- "to grow"

[< *fewy-, stem plus NS *'y ess.-act.]

625. *pʰéy   "to water, wet down"
Koman: Sn Koman *pʰey "to drink" (UDUK pʰíʹ, KOMO pe, OPO pii)
Koman: Gumuz *f- "to drink"
Sah: KANURI fì "to pour out"

[stem plus NS *-i itive is required to explain tone shift]

Astab: NARA fafe "rushing stream"

[redup. stem: proposed underlying pʰey-apʰey to explain /a/ in 1st syllable]

Kir-Abb: GAAM fɛg "water"

[stem plus NS *kʰ pl. marker]

Kir-Abb: C.Jebel *peeg- "to pour" (AKA peeg-, MOLO foogən-, KELO pə̈əs-)

[MOLO: stem plus NS *n dur.; KELO: stem plus NS *s prog. (with regular medial velar deletion)]

Kir-Abb: BERTHA (U) fírì, (F) férè "water"

[stem plus NS *r n. suff.]

Kir-Abb: PNil *pey "water" (PWNil *pi(k); PENil *-pí-; PSNil *peʀ "water")

[WNil: stem (plus NS *kʰ pl. marker); SNil: stem with regular SNil shift of PNil *y > *ʀ /#(C)V_#, where V = [+ATR], for which see also roots 410, 1487, and 1533]

Rub: IK fé- "to bathe"
Rub: IK fít- "to wash (clothes)"

[stem plus NSud *ʈ caus.]

Koman semantic innovation: shift of meaning to reflexive sense "to drink." Kir-Abbaian innovation: derivation of a noun for "water" from this root.

626. *pʰɛ   "to rise, go up"
Koman: UDUK pʰē "to jump, hop"
Koman: Gumuz: SESE pɛŋ "to fly"
CSud: PCS *pɛ "much, many"

[stem plus NS *ŋ punc.]
[semantics: "rise" > "increase" > "be much/many"]

KUNAMA fe- "to rise, get up"
Sah: KANURI fá "to wake up"

Sah: ZAGHAWA ha, fa "mountain"

[stem plus NS *-ah n. deriv. suff. as in Nara?]

FOR àppá "big"

[NS *a- attrib. pref. plus stem (with regular For gemin. of medial C in adj.)]

Astab: NARA kofa "mountain"

[NS *kʰ n. pref. plus stem plus NS *-ah n. deriv. suff. (*ko-fe-a)]

Astab: PNub *fan "to dance" (DONGOLAWI ban; DILING han)

[stem plus NS *n dur.]

Astab: Nub: DILING ahan "tomorrow"

[NS *a- attrib. pref. plus stem plus NS *n n. suff; semantics: from RISING of the sun to begin the new day]

Astab: Nub: NOBIIN fàt- "to jump out of water (fish)"

[stem plus NS *tʰ cont.]

Kir-Abb: GAAM fəin- "to awake, wake up"

[stem plus NS *n dur.]

Kir-Abb: C.Jebel: AKA peed- "to jump"

[stem plus NS *'y ess.-act. (to explain V length) plus NS *tʰ cont.]

Koman semantic innovation: narrowing of application of verb to a vigorous or abrupt kind of rising, jumping; linkage of "to jump" and "to fly," in other words to move off the ground, is common in African languages and explains the further shift in Sese to the latter meaning. Differing morphology of the Gaam and Kanuri verbs meaning "to wake" indicates them to be independent shifts. The Nara and Zaghawa nouns probably reflect a common Saharo-Sahelian innovation, possibly of the form *pɛ-ah > *pah, stem plus *-ah noun deriving suffix. The presence of the *kʰ noun prefix (the so-called 'movable k'), added here to the Nara reflex, is not usually diagnostic of a distinct derivation in this kind of instance (see, for example, the Zaghawa versus Kanuri and Songay reflexes of root 569).

627. *pʰɛː OR *pʰɛːh   "to undo"
KUNAMA feffe- "to undo"

[redup. stem as iter.]

Sah: KANURI fét "to undo, unplait"

[stem plus NS *tʰ cont.]

FOR *faul- "to open"

[stem plus NS *-uh ven. plus NS *l iter. as dur.?]

FOR *faur- "to separate (fighters)"

[stem plus NS *-uh ven. plus NS *r iter.]

Kir-Abb: GAAM fəəg "open, spread (adj)"

[stem plus NS *k adj. suff.]

Sahelian semantic innovation: a broadening of the focus of the verb from the action of undoing things tied or twisted to an action of spreading things apart without their necessarily having previously been tied or twisted together.

628. *pʰɛːɖ   "to spread (mat)"
Koman: UDUK pʰáɗ "to spread cloth, spread something out"

[tone raised by analogy to usual Uduk effect of adding final *-ɗ suff. to stems? Or else error in Gaam tone recording?]

KUNAMA ferke- "to spread legs"

[stem plus NS *kʰ iter.; vowel preserves the expected outcome of this root, but its meaning apparently derives from coalescence with root 679]

KUNAMA feriŋa- "to open wide"

[stem plus NS *ŋ punc. plus NS *-a dispunc.; for explanation of meaning, see previous Kunama entry]

Sah: KANURI fér- "to unfold (mat, carpet)"
Kir-Abb: GAAM fət- "to spread (mat)"
Kir-Abb: C.Jebel *peedan- "to open" (AKA peedan-, MOLO feedan-, KELO fɔdaan-)

[stem plus NS *n dur.]

Kir-Abb: Nil: WNil: OCOLO pɛt̪ "to spread out, un-
   roll, unfold"
Kir-Abb: Nil: ENil: TESO [-pɛt "to spread": LOAN
   from WNil (devoicing of Nil *ɗ)]
Kir-Abb: Nil: ENil: BARI [pɛd-dya "to spread (of
   mat and the like); to stretch (of branches)": LOAN,
   probably from WNil (expected *pɛɗ-)]
Rub: IK [pɛ́t- "to scatter": LOAN (expected *fɛd-)
   from Ateker]

629. *pʰɛkʼ   "to jerk (intr.)"

KUNAMA feko- "to jerk the hand suddenly"
SONGAY fèynì "to fan, waver"   [stem plus NS *n dur.]
Kir-Abb: Nil: WNil: NAATH piɛk "when grass is
   moved by fish" (revealing their presence to fish-
   ers)

630. *pʰɛ́kʼɛl   "to wobble, waver"   [root 629 plus NS *l iter.]

Sah: KANURI fə́gə́ləm "to stagger, wander aim-   [stem plus NS *m iter. concis.]
   lessly" (H)
Sah: KANURI fə́gə́lá "to writhe in agony" (H)   [stem plus NS *-a dispunc.]
Kir-Abb: GAAM fə́gə́lɛj "loose (adj.)"   [stem plus NS *ş n./adj. suff.]

631. *pʰɛ́ntʼ   "to cut a hole in"

CSud: PCS *pɛ "to cut into"
CSud: ECS *pɛ "hole, notch, crack"
KUNAMA kofenta "ravine, precipice"   [NS *kʰ n. pref. plus stem]
SONGAY fénsí "to hollow out"   [stem plus NS *'y ess.-act.]

632. *pʰɛ́ŋ   "to hear, sense, feel"

Koman: KWAMA [-pɪŋ- "to hear": LOAN from
   WNil (shows Kir-Abb shift of NS *ɛ to *ɪ /_N)]
Sah: KANURI fàn "to hear, understand, smell, feel"
Sah: KANURI fànd- "to find, get"   [stem plus NS *tʰ cont.]
Kir-Abb: GAAM fɪŋən- "to hear"   [stem plus NS *n durat.]
Kir-Abb: GAAM fɪndən- "to feel, have intuition"   [stem plus NS *tʰ cont. plus NS *n
                                                       dur.]

Kir-Abb: Nil: WNil: Jyang-Naath *pɪŋ "to hear"

633. *pʰɛ́tʰ   "feather"

SONGAY fátá "wing"
Sah: KANURI féfétò "wing"   [former influence of root 682 may ac-
                                                       count for failure of expected *ɛ > /a/
                                                       shift here]

Kir-Abb: C.Jebel *pə(e)ta "feather" (AKA pəta, PL.
   pətaki; MOLO fəəta; KELO pəto)

The meaning "feather" has been considered primary here, because a distinct and very early Nilo-
Saharan root that consistently means "wing" can also be reconstructed (root 682).

634. *pʰɛːt̪ʰ OR *pʰɛːtʰ   "to feel unwell"

KUNAMA fete-, feteke- "to fall in faint"   [2nd entry: stem plus NS *kʰ iter.]
Sah: KANURI féfét "to feel ill (of one's heart)"   [partially redup. stem (as intens.?)]
Maban: MABA fɛ́t- "to wound, hurt" (L)

635. *pʰíːɗ   "to spring, leap"

KUNAMA firi- "to jump unexpectedly with liveli-
   ness"
SONGAY fírìm "to jump suddenly"   [stem plus NS *m iter. concis.]
SONGAY fíttórì "to bound, jump, pirouette"   [*firtori, stem plus NS *tʰ cont. plus NS
                                                       *r iter. plus NS *-i itive]

Kir-Abb: Surmic: DM *-fir- "to run (away)"
Kir-Abb: Nil: WNil: OCOLO pit "to run after"
Kir-Abb: Nil: ENil: MAASAI -ɪpíd "to jump, espe-   [*i- v. class pref. plus stem]
   cially in dancing"
Kir-Abb: Nil: ENil: MAASAI [-ipirrí "to run away": [*i- v. class pref. plus stem plus NS *-i
   LOAN, probably from Surmic]   itive]
Rub: IK [ípírí "to jump, run, increase speed in   [structure as in Maasai reflex]
   running": LOAN (expected *píɗ-) from ENil]

Possible Surma-Nilotic semantic innovation: A shift from springing to running is shared by the
reflexes in Didinga-Murle and in Ocolo of Western Nilotic, but counterindicated for the regularly
corresponding form of this root in Maasai of Eastern Nilotic.

636. *pʰíːɖ   "to separate (tr.)"

CSud: PCS *pi "to split, cut apart"
KUNAMA [fira- "to disentangle": LOAN (expected   [stem plus NS *-a diffus.?]
   *fid-)]
Sah: KANURI fír "to separate, isolate, set apart"
Astab: PNub *firt- "to break, divide"   [stem plus NS *tʰ cont.]
Astab: Nub: NOBIIN fíir- "to carry off"
Kir-Abb: GAAM fít- "to scatter; card cotton; break
   to pieces"
Kir-Abb: Nil: ENil: TESO a-pidiŋ "gap"   [stem plus NS *ŋ n. suff.]

637. *pʰíːh   "dirt"

Koman: UDUK àpʰíʼ "soot"   [NS *a- n. deriv. pref. plus stem]
Sah: KANURI fífí "manure"   [redup. stem]
Kir-Abb: Nil: ENil: TESO a-piu "gall, bile"   [stem plus NS *-uh n. suff.]
Kir-Abb: Nil: PSNil *pi: "dung, excrement"

Probable Saharo-Sahelian semantic innovation: narrowing of meaning of root to bodily excretions.

638. *pʰíl   "thin stick"

Koman: UDUK pʰíl "digging stick"
CSud: PCS *pi "stick"
Sah: KANURI fə́rtə̀ "root"   [stem plus NSud *t̪ or *tʰ n. suff.]
Kir-Abb: GAAM fílád, PL. filg "root"
Kir-Abb: C.Jebel: AKA filke, PL. filiɲi; MOLO fílkɔ [stem plus NS *k singul. suff.]
   "root"
Kir-Abb: BERTHA fìːlí "root"   [apparently originated as a pl. because it
                                                       shows V-length feature also indica-
                                                       tive of pl. in Gaam (> Gaam /i/]

Kir-Abb: Surmic: S.Surmic: DIDINGA [vɪ̄lu "dig-
   ging stick": LOAN, probably from WNil language
   (see Acholi entry below)] (Driberg)
Kir-Abb: Nil: WNil: ACHOLI [pɪlo "digging stick":
   LOAN from Koman]

Kir-Abb: PNil *pɛl "umbilical cord" (WNil: OCOLO pɛl "umbilical cord"; ENil: BARI pɛlɛ' "belly")

[for PNS *i > Nil *ɛ /#p_I, see also root 686 below; BARI: *pɛlɛl, stem plus NS *l suff. or else partially redup.; semantics: "umbilical cord" > "navel" > "belly"]

Saharo-Sahelian semantic innovation: A shift in meaning from "thin stick" to "strand, strip" can be seen to underlie the Kanuri, Gaam, Bertha, and proto-Nilotic meanings. The differing derivational morphology of the Kanuri and Jebel words for "root" indicates that this meaning arose separately in the two language groups.

639. *pʰíːl OR *pʰíːl "to swell"

CSud: ECS *pi "to swell"

KUNAMA -fil- "to swell"

Sah: KANURI fíl "to bud, blossom"

Maban: MIMI pilak "big"

[stem plus NS *-ah n./adj. deriv. suff.; -k is Maban sing. suff.]

Rub: SOO pil "flower"

Saharo-Sahelian semantic innovation: narrowing of the application of the simple verb to the swelling of buds and hence to blossoming. Mimi of Maban in its derived adjective, however, implies the earlier sense.

640. *pʰíːŋ "to overflow"

KUNAMA fiŋi- "to fill excessively"

Sah: KANURI fìn "to flood, boil, foam over"

Maban *pʰíŋ "full" (MABA fiŋ, MIMI piŋ)

641. *pʰír "to spin (tr.)"

CSud: MM: LUGBARA pìrìlìá "whirlwind"

[stem plus NS *r iter. plus CSud *l adj. suff. (NS *l) plus CSud *-a n. forming suff. (NS *-ah)]

CSud: MM: LUGBARA pírípírí "whirling, giddiness"

[stem plus NS *r iter., redup. as iter.]

Sah: KANURI fárí "to spin"

[stem plus NS *'y ess.-act.]

Sah: KANURI fírífírí "to pierce by drilling"

[1st Kanuri entry redup. as iter.]

SONGAY fífírí "to stir sauce (by rolling stirring stick between hands)"

[partially redup. stem as iter.]

SONGAY fírká "to swerve"

[stem plus NS *kʰ intr. plus NS *-a dispunc.]

Kir-Abb: Nil: PENil *pɪr "to spin (firestick, porridge stick)"

Kir-Abb: Nil: ENil: MAASAI [ol-pírón "firestick": LOAN from SNil (expected *pirron)]

[see SNil entry]

Kir-Abb: Nil: PSNil *píʀòn "firestick"

[stem plus NS *n n. suff.; semantics: firestick is operated by spinning it between the hands]

Saharo-Sahelian semantic innovation: narrowing of the application of the verb to spinning an object by rolling it between the hands is overtly present in the basic verb in the Songay and Nilotic meanings and is implied in at least the second Kanuri meaning.

642. *pʰír OR *pʰíd OR *pʰíɗ OR *pʰíɖ "shin"

Sah: KANURI fárán "shin of animal"

FOR fírí "shin"

[stem plus NS *n n. suff.]

643. *pʰò OR *pʰō "to talk"

CSud: BALEDHA pò "to say"

SONGAY fò "to greet, thank"

Rub: Soo pââ' "to explain"

[stem plus SOO *-a' ext. (NS *-a dispunc. > *-a', glottal stop by analogy to SOO *-u' reflex of NS *-uh ven., with *o > a /#C_a']

644. *pʰó "to throw"

Koman: UDUK pʰó "to throw"

KUNAMA fa- "to throw"

Rub: IK fɔt- "to winnow"

[stem plus NS *tʰ cont., i.e., keep tossing]

645. *pʰòːɗ "to be slight, light(weight)"

Koman: UDUK pʰòɗápʰòɗ "light in weight"

[adj. by redup. stem]

Maban *pʰurd- "thin" (MABA furdak, PL. furdetu; MIMI purdak)

[stem plus NSud *t n./adj. suff.]

Kir-Abb: GAAM fɔrɔj "few, less, little"

[stem plus NS *t' n./adj. suff.]

Kir-Abb: C.Jebel *pɔrdɔr- "weak" (AKA pɔrdɔra, MOLO fɔdɔra, KELO pɔdɔyə)

[stem plus NSud *t n./adj. suff. plus NS *r adj. suff.]

Kir-Abb: Nil: WNil: OCOLO pot "slim, slender, thin (person)"

Rub: IK [fɔfɔd- "to be weak, light": LOAN (expected *fofóɗ-)]

[partially redup. stem]

646. *pʰól "hole (not in ground)"

CSud: ECS *po "hole; to pierce hole"

KUNAMA fala "temple (of head)"

[semantics: the temple has the shape of a shallow depression]

SONGAY fólú "space between fingers"

Kir-Abb: GAAM fól, PL. fuulg "hole"

[semantics: "hole" > "gap"]

647. *pʰōr "to flee"

Koman: UDUK àpʰpʰōr "track of animal"

[NS *a- attrib. pref. plus stem; semantics: tracks mark the course of animals fleeing a hunter]

KUNAMA [foro- "to desert, flee": LOAN (expected *far-)]

KUNAMA [forkoša-, fokkoša- "to surpass": LOAN (expected *fark-)]

[stem plus NS *kʰ iter. plus NS *θ intens.]

Sah: KANURI fárás "to escape, run away"

Sah: KANURI fár, fárát "ideophone of abrupt departure"

[stem plus NS *θ intens.]

Astab: NARA fur "to flee"

[2nd form: stem plus NS *tʰ cont.]

Kir-Abb: Nil: WNil: BURUN [pɔr "path, road": probable loan from Koman]

Kir-Abb: Nil: ENil: Ateker *-pɔr(ɔr) "to fly"

648. *pʰótʰ "to call, cry out" [root 643 plus NS *tʰ cont.]

CSud: ECS *po "to cry, shout"

SONGAY fútú "to be angry"

Kir-Abb: Nil: WNil: NAATH puɔtɛ "angry"

[stem plus NS *-uh ven.]

Kir-Abb: Nil: ENil: MAASAI -ípot "to call" [*i- v. class pref. plus stem]
[possible LOAN from unidentified source
(expected *-pɔt- ?)]

Sahelian semantic innovation: A narrowing of the meaning of the verb to a particular kind of loud expression, "to show anger," appears in the Songay and Nuer reflexes. The seeming retention of the earlier meaning in the Maasai form may be due to a reborrowing of the root from a non-Sahelian language in which that meaning was maintained, possibly Koman.

649. *pʰoṭ "to flow"

Koman: UDUK pʰūcūm "to cleanse with water, as of [stem plus NS *m iter. concis.]
manure from floor"
Kir-Abb: Nil: WNil: OCOLO pöco "first rain before
season really starts"
Rub: IK fóts "valley" (fótsá-; also Rub: IK fots [stem plus NS *-ah n. deriv. suff.?]
"riverbed": Heine has both)

650. *pʰɔ́ "to ooze, seep, become liquid"

Koman: UDUK pʰó "to drip"
KUNAMA fofo- "to dissolve" [redup. stem as iter. or extended action]
KUNAMA kofa "pus" [NS *kʰ n. pref. plus stem with required
Kunama n.-final -a]

Sah: KANURI fá "to melt (intr.)"
Sah: KANURI fógó "cloud" [stem plus probably NS *w punc. plus
NS *kʰ iter., i.e., "to spill out," plus
NS *-Vh n. deriv. suff.]

SONGAY fòtògò "to be liquid, overflow" [stem plus NS *tʰ cont. plus NS *k in-
tens.]

Astab: PNub *foːg "to pour" (DONGOLAWI boːg, [stem plus probably NS *w punc. plus
NOBIIN fóog-) NS *k intens. (*fɔwk-) to account
for V length and outcome *oo in-
stead of expected *a]

Kir-Abb: C.Jebel: KELO pɔ "river"
Kir-Abb: Nil: WNil: OCOLO pɔṭ "slick, slippery" [stem plus NSud *ṭ n./adj. suff.]

651. *pʰɔ́ːk OR *pʰɔ́ːkʰ OR *pʰɔ́ːkʼ "to consecrate"

Sah: KANURI fòk "to stand before in veneration"
Kir-Abb: GAAM fáān- "to glorify, honor God, make [stem plus NS *n dur. (< *fɔ̀gān-)]
holy"
Kir-Abb: Nil: WNil: OCOLO pɔk "to dust with ashes
(sign of consecration)"

652. *pʰɔ́ŋk "to raise"

KUNAMA fogo-, foko- "to rear"
SONGAY fánjì "to heap up (of objects)" [stem plus NS *-i itive]
Maban: MABA fongoik, PL. fongoitu "broad, wide" [stem plus NS *-Vh n./adj. suff.]
Kir-Abb: GAAM fəŋən- "to grow up" [stem plus NS *n dur.]
Kir-Abb: C.Jebel: MOLO fɔɲa "many" [stem with substitution of ESah *ɲ pl.
marker for stem-final *ŋ, as, e.g., in
root 762 among others]
Kir-Abb: Nil: ENil: MAASAI -poŋú "to swell (of [stem plus NS *-uh ven.; n.: v. plus de-
stomach)"; ɛm-pɔ́ɲìt "swelling of stomach" verb. suff. in *t (NS *tʰ or *ṭ)]

Kir-Abbaian semantic innovation: shift of meaning of the verb to intransitive sense, to grow in size or amount. The Maba reflex may have followed a slightly different path of meaning shift, via an intermediate sense, "to make large," with its adjective formed in that case from a transitive rather

than intransitive verb. Alternatively, the Maba reflex may reveal a meaning shift shared with the Kir-Abbaian forms and thus be a counter-example for placing Maba and Songay in their own sub-group of Sahelian.

653. *pʰú "to expand, spread out"

CSud: ECS *pu "to spread out (intr.)"
KUNAMA fua- "to increase, rise" [stem plus NS *-a dispunc.]
Sah: KANURI fú "to swell"
Astab: NARA fon "to be swollen" [stem plus NS *n dur. (*fu-an > *fon)]
Kir-Abb: Nil: ENil: TESO -pu "many, much, ample"
Kir-Abb: Nil: ENil: BARI pun "to germinate" [stem plus NS *n dur.]
Kir-Abb: Nil: SNil: Kalenjin *pwa "to swell" [stem plus NS *-a dispunc.]

Other possible reconstructions: *pʰū or *pʰūh. Probable Saharo-Sahelian semantic innovation: development of the meaning "to swell" for the simple verb reflex of this root.

654. *pʰù "to blow (with the mouth)"

CSud: PCS *pu "to blow (with the mouth), breathe"
KUNAMA fu- "to blow, puff"
KUNAMA fufu- "to blow (wind)" [redup. stem as iter. or intens.]
Sah: KANURI fù "to blow (with mouth)"
Sah: KANURI fùt, fə̀t "to blow water out of mouth" [stem plus NS *tʰ cont.]
Sah: KANURI fùn "to blow water out of mouth" [stem plus NS *n dur.]
Sah: KANURI fə̀tfə̀t "to fan (with straw mat)" [stem plus NS *tʰ cont., redup. as iter.]
FOR fu- "to blow"
Kir-Abb: GAAM fúú- "to blow out, exhale" [stem plus probably NS *-i itive (*fùí-
> *fúú-) or *w punc., to explain
tone raising shift]
Kir-Abb: GAAM fuí- "to whistle" [*fuij-, stem plus NS *'y ess.-act.]
Rub: IK fút- "to blow" [stem plus NS *tʰ cont.]
Rub: IK fuut- "to breathe heavily" [stem plus NS *w punc. plus NS *tʰ
cont.]

655. *pʰúh OR *pʰúːh "to spoil, decay"

Koman: UDUK pʰúʼ "to rot, dissolve, decay, spoil"
KUNAMA fu- "to become thin, emaciated"
FOR fùyyá "sour (of properly fermented beer)" [stem plus NS *'y n./adj. deriv. suff.,
with regular For gemin. of medial C
in adj.]
FOR fùò "bubble" [stem plus NS *w n. deriv. suff.; se-
mantics: bubbles are the product of
fermentation and other decay of flu-
ids]

656. *pʰùh "lungs" [root 654 plus NS *-Vh n. deriv. suff.]

CSud: ECS *pu "lung"
KUNAMA futa "lung" [stem plus NS *tʰ n. suff., possibly
originally conveying a singulative
sense]
Sah: KANURI fúfù "lung" [redup. stem (as coll.?)]
SONGAY kúfú "lung" [NS *kʰ n. pref. plus stem, probably
here as particularizer, i.e., "lung" as
opposed to "lungs"]

Kir-abb: Nil: WNil: NAATH puaʈ, puoʈ "lung" | [stem plus NS *ʈ n. suff., *pu-aʈ), probably originally a singulative formation]

Kir-Abb: Nil: SNil: Kalenjin *pwaːn "lungs" | [stem plus NS *n n. suff. (*pu-aːn), possibly originally as a pl.]

The probable derivation of this root from root 654 suggests that at some earlier, pre-proto-Nilo-Saharan point in time, the meaning of the underlying verb was "to breathe." In its Saharan shape, this root was borrowed early into the Chadic branch of the Afroasiatic language family.

657. *pʰùːl "hornet"

FOR fùlè "hornet" | [stem plus NS *y n. suff.]
Kir-Abb: GAAM fùlmà "mud-dauber wasp" | [stem plus NS *m n. suff.]

658. *pʰúːl "to moisten"

Koman: UDUK pʰúlúl "to dry a little after a rain; to form a crust on the ground" | [stem partially redup.; semantics: to be still moist under the surface]
KUNAMA fulu- "to smooth, make soft"
Sah: KANURI fúl "to bathe (new baby)"
Sah: KANURI fúlúlú "ideophone of spilling liquid" | [stem partially redup. as iter. or intens.]
Kir-Abb: Nil: WNil: NAATH pul "pool"

659. *pʰúl̪ or *pʰúːl̪ "to come out"

Koman: UDUK pʰúɗ "to arrive"
CSud: ECS *pu "to arrive"
Rub: IK ifúl- "to go early (at dawn)" | [*i- v. class pref. plus stem]
Rub: IK [púlúm-et- "to come out": LOAN (expected *ful-)] | [stem plus NS *m iter. conc. plus Ik ven.]

The best semantic reconstruction on the basis of the evidence available here would be "to come out," in which case Koman and Central Sudanic share an innovation in the direction of the action, "come out" > "come toward, approach" > "arrive."

660. *pʰúːn "to smell (tr.)" [*pu-uh-n, root 654 plus NS *-uh ven. plus NS *n dur.?]

Koman: Gumuz: KOKIT fun "to smell (tr.)"
KUNAMA funci- "to dirty" | [*funši-, stem plus NS *ṣ caus., i.e., to make smell bad; NS *ṣ > KUNAMA [š] /_i]
SONGAY fú "to fart"; fúuní "fart (n.)" | [n.: stem plus NS *-ih n. deriv. suff.]
Kir-Abb: GAAM [fùn- "to fart": LOAN (expected *fún-)]

The structure proposed above for this root is required to account for the change of vowel length and of tone from those of the source root 654; the addition of the venitive accounts at the same time for the change of direction of the action from blowing out to breathing in, i.e., smelling. Northern Sudanic semantic innovation: A shift from the general transitive action of smelling to the intransitive producing of a bad smell is attested in all but the Gumuz case.

661. *pʰúŋk "to move suddenly"

KUNAMA fuŋga-, fuŋgo- "to move, overturn (intr.)"
Kir-Abb: GAAM fuŋund- "to chase away" | [stem plus NS *n dur. plus NS *ʈ caus.]

662. *pʰúr "to throw"

KUNAMA furtu- "to practice with spear" | [stem plus NS *tʰ cont.]
SONGAY fúrú "to throw away"
Kir-Abb: GAAM furi- "to throw away" | [stem plus NS *-i itive]

Kir-Abb: C.Jebel: KELO purs- "to throw"
Kir-Abb: TEMEIN pur "to throw" | [stem plus NS *s prog.?]

663. *pʰūr "to blow (something) out of the mouth"

CSud: ECS *pwi "to expel from the mouth" | [CSud stem (NS *CVC > PCS *CV) plus CSud *-i suff. (NS *-i itive)]
KUNAMA furu- "to spit out"
Sah: KANURI fàrət "to spit out" | [stem plus NS *tʰ cont.]
FOR fur- "to blow (of wind)"
Kir-Abb: GAAM [purf- "to blow out water, spray, sprinkle": LOAN from NS language in which *pʰ > *p (expected *furf-)] | [stem plus NS *pʰ extend. intens.]
Kir-Abb: BERTHA fùl- "to blow"
Kir-Abb: NYIMANG fuʈuḍ-i "to vomit" | [stem plus NSud ʈ' iter. intens.?]

Sahelian semantic innovation: In the non-extended, non-borrowed Sahelian reflexes (For and Bertha), a broadening of the application of the root to all kinds of blowing is attested.

664. *pʰùːr "to swell up, puff up" [possibly root 653 plus NS *r iter.]

Koman: UDUK pʰūr, pʰūrūɗ "to just begin to ferment" | [2nd shape: stem plus NS *l̪ intr.]
Koman: UDUK pʰūrápʰūr "tasty, of spoiled meat, 'ripe' for the eating" | [adj. by redup. stem]
Sah: KANURI fùrwá "to inflate, blow up" (H) | [stem plus NS *p extend. plus NS *-a dispunc.]
Sah: KANURI fùrtó "swelling" | [stem. plus NS *tʰ n. suff.]
SONGAY fùurù "to strut, march with head high, be swelled up with pride"
SONGAY fùurími "act of increasing the volume (of a termite mound)" | [stem plus NS *m n. suff.]
Kir-Abb: Nil: WNil: NAATH pwar "to swell up, rise, ferment"; JYANG puor "to ferment, boil" | [Jyang and last Naath meaning may be due to Koman influence]
Kir-Abb: Nil: ENil: BARI topurun "to rouse (wake up)" | [ENil *t caus. pl. stem plus ENil ven. *-u(n)]

Possible Sahelian semantic innovation: A shift from swelling to a different kind of rising up, of a person, is attested in the Bari and the simple Songay verb.

665. *pʰuːr "chest, upper part of trunk"

KUNAMA urfa "heart" | [metathesis: *ofur-, NS *o- attrib. pref. plus stem, > *oruf- > *uruf- by regular regressive assim.]
Kir-Abb: NYIMANG fwùrè "rib"
Kir-Abb: Nyimang: DINIK kɔfurka "breast" | [NS *kʰ n. pref. plus stem plus NS *k singul. (because breasts come in pairs)]
Kir-Abb: PNil *puːʀ/*puːʀ "upper back" (ENil: TESO e-pura "back"; SNil: Kalenjin *puːʀ "shoulder")

666. *pʰutʰ "to swell up" [root 653 plus NS *tʰ cont.]

KUNAMA fotota "corpulent" | [probable *futota, stem plus NS *tʰ n./adj. suff. in its common Kunama shape *-ota, with regressive V assim.]
Astab: Nub: DILING hud "to sprout, go up" | [NS *pʰ > DILING h]

Kir-Abb: PNil *put "to swell" (WNil: NAATH pwɔt;
ENil: Lotuko-Maa *-pʊt- "to be full"; BARI pʊd-
dya "to bloom (of grain ears)")

667. *pʰu:θ "to be(come) bad, nasty, dirty" [root 655 plus NS *θ intens.]

Koman: UDUK pʰūsápʰūs "bad-smelling" [adj. by redup. stem]

Koman: UDUK pʰūsūlápʰūsūl "matted, stringy [stem plus NS *1 n./adj. suff., redup.]
(hair)"

Kir-Abb: Nil: WNil: OCOLO put̪ "to do slovenly"

Kir-Abb: Nil: WNil: NAATH put̪ "to smell bad," [adj. by redup. stem]
put̪put̪ "bad; very dirty; foul-smelling"

The sense of smelling bad found both in one Koman and in one Western Nilotic language probably
reflects an areal semantic influence, the direction of which is unclear.

668. *pʰwὲ "to make a hole in, puncture"

Koman: UDUK pʰwā, pʰwáɗ "to wound, hit lightly, [2nd entry: probable confusion with root
just go through the skin" 669 following]

KUNAMA fo- "to make a hole"

Sah: KANURI fói "ideophone of wide open hole" [stem plus NS *'y ess.-act. or *'y n./
adj. suff.]

SONGAY fúñ "to pierce, puncture" [stem plus NS *n dur.]

669. *pʰwὲɗ "to peel, skin"

Koman: UDUK pʰwā, pʰwáɗ "to peel, skin, as bark [1st form: apparent confusion with root
from tree or skin from animal" 668 preceding, which see]

CSud: PCS *pɔ "to tear off" [alternatively, this root may be the same
as that cited in 589]

Sah: DAZA fɔfɔr "bark" [partially redup. stem]

Sah: TEDA ofori "feather" [NS *o- n. deriv. pref. plus stem]

FOR foru "fleece" [stem plus NS *-uh n. deriv. suff.]

Astab: Taman: SUNGOR ofernak "bark" [NS *o- n. deriv. pref. plus stem plus
NS *n n. suff. plus NS *kʰ pl.
marker (bark is a mass n.)]

Kir-Abb: GAAM furu "leather, skin" [stem plus NS *-uh n. deriv. suff. (as in
For reflex]

Kir-Abb: C.Jebel: AKA pɔɔri "bark"

Kir-Abb: C.Jebel *pɔrɔŋ- "turtle" (AKA pɔrɔŋa, [stem plus NS *ŋ n. suff.; semantics:
KELO bɔyɔɔŋa) animal characterized by hard cover-
ing]

Rub: SOO poɗ "to untie, undress"

Rub: IK fɔɗ (foɗá-) "old woman's long front apron" [stem plus NS *-ah n. deriv. suff.; se-
mantics: apron is made from a goat
skin]

Rub: IK [poɗ- "to remove bark or shell": LOAN
(expected *foɗ-), possibly from WRub (Soo)]

Probable Sahelian innovation: A noun *pʰwɛɗuh, "skin removed from animal," derived from the
verb by addition of the Nilo-Saharan *-uh noun suffix, can be seen in the For and Gaam reflexes,
but not apparently in the Ik form. The differing structures of Teda "feather" and Sungor "bark"
suggests that, although each adds the Nilo-Saharan attributive forming prefix *o- to the stem, they
were probably separate derivations from the root. Aka and Daza "bark" might conceivably reflect a
common innovation, but the partial reduplication in Daza again makes it unclear that a single deri-
vational event is involved.

670. *pʰwῑ "to be absent, to not be"

Koman: UDUK pʰῑ "to be absent, not to be"

CSud: PCS *pwi "to kill"

FOR fu- "to kill"

FOR fuya, PL. fuyaŋ "death" [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: C.Jebel *pɔɔ- "to kill" (AKA pɔɔ, MOLO [MOLO, KELO: stem plus NS *-'y ess.-
fɔɔd-, KELO pɔɔz- act. (> MOLO d, KELO j /V_-#)]

Kir-Abb: BERTHA fí(y)- "to kill" [stem with probably [y] epenthesis]

Kir-Abb: Nil: ENil: BARI [pʊ-ja "to not take place":
LOAN (expected *pu-), probably from Koman]

Kir-Abb: Nil: PSNil *pʊ:ɲ "enemy" [stem plus NS *ɲ n. suff.]

Rub: SOO pu' "poison" [stem plus NS *-Vh n. deriv. suff.]

Sudanic semantic innovation: narrowing of the application of the root, originally as a euphemism,
to a particular kind of not being present, namely death, with apparently an accompanying shift
from intransitive to transitive sense, as "to kill." The Bari reflex evinces a form of the postulated
original meaning, but is a loan from a language, possibly Koman, in which the semantic innova-
tion did not take place. NOBIIN faay- "to kill" (see root 613) fails the test of regular sound corre-
spondence except in its initial consonant and so cannot be attributed to this root.

671. *pʰwil "upper arm, bicep"

CSud: ECS *pu OR *pwi "bicep, upper arm"

KUNAMA filita "bicep" [stem plus NS *tʰ n. suff.]

Astab: Taman: TAMA aful "wing" [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Daju: LAGAWA pulbul "shoulder" [redup. stem]

Kir-Abb: Nil: SNil: NANDI ce:pwilpwil "bicep" [Kalenjin fem. attrib. pref. (*ce:p-) plus
redup. stem]

Apparent Kir morphological cum semantic innovation: reduplicated stem with a meaning shift,
probably to "shoulder," as in the Daju reflex. The Nandi construction has the implication "item-
having-to-do-with *pwilpwil," in which *pwilpwil would name a thing different from (e.g.,
"shoulder"), but associated with or connected to, what the construction as a whole refers to (e.g.,
"bicep"). The Nandi reflex must thus be understood as a rederivation of a word having what hap-
pens to be the original meaning of the root.

672. *ápʰóh "upper torso, rib cage"

Koman: UDUK ápʰó' "back; on top"

KUNAMA afuna "bosom; beside" [stem plus NS *n n. suff. (with V
lengthening: *CVhVn > *CV:n)]

SONGAY fòfè "breast" [*afofo-eh, redup. stem as pl., plus NS
*-eh n. deriv. suff, with normal
Songay loss of *a- /#_CVC]

Kir-Abb: Daju: NYALA ꝑete "nipple, udder" [stem plus NS *tʰ n. suff. (probably
originally as sing.: *apote > pete by
regular *a- loss and regressive V as-
sim.)]

Kir-Abb: Surmic: MAJANG a:pɔti "breast" [structure as in Daju reflex]

Kir-Abb: Nil: WNil: JYANG pwou "heart" [*pou, stem plus NS *w n. suff.]

Probable Kir innovation: The adding of Nilo-Saharan *tʰ noun suffix to the root, producing a spe-
cifically mammary meaning, probably originally "teat, nipple," is present in the cited Daju and
Surmic reflexes. In its Songay shape, this root appears to have been borrowed early by the Chadic
branch of Afroasiatic and into the Berber branch of that family also.

673. *úpʰ "to wash oneself, bathe"

Koman: UDUK úpʰ "to wash by dashing water all
over the body"

KUNAMA uf- "to wash self, bathe"

PROTO-NILO-SAHARAN STEM-INITIAL *p'

674. *p'á:ŋk   "to come into view"

Sah: KANURI báŋ "ideophone of sudden opening of something"
[instance of irregular Kanuri preservation of PNS *ŋ in an ideophone]

FOR faag- "to arrive"

SONGAY báŋgéy "to appear"
[stem plus NS *'y ess.-act.]

Kir-Abb: Nil: ENil: MAASAI -ɪpaŋú "to appear"
[*i- v. class pref. plus stem plus NS *-uh ven.]

675. *p'á:wɬʰ   "to bubble up, foam, froth"

Koman: UDUK p'ácʰáp'ácʰ "fermented, soured, sour"
[adj. by redup. stem]

KUNAMA fofoša "foam, froth"
[partially redup. stem]

SONGAY bòosù "to bubble up, foam, froth"
[stem plus NS *-uh ven.]

Astab: NARA fus "to boil, cook"

676. *p'á:y OR *p'á:'y   "to become wide, spread out"

KUNAMA fai- "to broaden, spread"

Sah: KANURI báyè "wilderness, spaciousness"
[stem plus NS *y n./adj. deriv. suff.]

Astab: Nub: DONGOLAWI ba:i "to be distant, be far (away); to remain distant, keep away, be averse"

Kir-Abb: Nil: ENil: BARI pajɔ' "distant, far"

Other possible reconstructions: *p'á:y or *p'á:'y. Eastern Sahelian semantic innovation: shift of meaning from being wide to being far away.

677. *p'èd   "red"

Koman: Sn Koman *p'ed "red" (UDUK p'ēd, KOMO p'elin)
[Komo: stem plus NS *n modif. suff.]

Kir-Abb: GAAM bèrɬé(n) "red"
[stem plus NS *ɬ n. suff. plus NS *y n./adj. suff. (> GAAM -e) (plus NS *n modif. suff.)]

Kir-Abb: proto-Daju *pir "red"

Kir-Abb: Surmic: SWSurmic: ZILMAMU bire "red"

Kir-Abb: Nil: SNil: Kalenjin *piri:r "red"
[stem partially redup. or else plus NS *d adj. suff.]

678. *p'éd   "to hit"

CSud: ECS *p'e "to hit"

Astab: PNub *ber "to kill" (MIDOB per; DONGOLAWI bɛ:)
[Dongolawi shift *Vr > V: /#C_-#, for some C = [+voice/-contin.], is regular, although environment remains to be fully worked out (e.g., root 425); semantics: derivation of "kill" from "hit" recurs in a number of African languages]

Kir-Abb: Nil: SNil: Kalenjin *pír "to hit"

High tone has been reconstructed here because the Kalenjin reconstructed shape (see reflexes in Rottland 1982) in this instance had high tone.

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679. *p'éɗ   "to pull open or apart; to pull bow"

Koman: UDUK p'ēɗ "to force open (as mouth)"

Koman: UDUK p'ēɗ ābwà "to pull bow" (ābwà "bow")

SONGAY bírí "to pull bow"
[stem plus NS *-i itive]

Kir-Abb: GAAM bɛ̄ɬ- "to spread (e.g., legs)"

Kir-Abb: Nil: SNil: Kalenjin *pɛt "to split, rip open"

680. *p'eyl   "upper grinding stone"

KUNAMA feɪa "upper grindstone"

Kir-Abb: C.Jebel *peɪa "stone" (MOLO feɪa, AKA peeɪa, KELO beɪa)

Kir-Abb: BERTHA [bɛ̀ɪɛ̄ "stone": LOAN (from KELO? Expected *p'ɛ:ɪ-)]

Kir-Abb: Nil: PWNil *pil "grindstone" (OCOLO pil, PL. pɛl; NAATH pil)

Rub: SOO beɪát, PL. beɪi "stone ball for grinding tobacco" (Weatherby)
[presumed actual *ɓeɪat, PL. ɓeɪi; Weatherby does not mark implosion; NS *p' > PRub *ɓ]

681. *p'ɛ́   "ground"

Koman: UDUK p'é- "lower bottom (part of thing)"

Koman: UDUK p'én "down"
[stem plus NS *n modif. suff., added since NS *ɛ > UDUK a /C_C (NS *ɛ > UDUK e /#C_#)]

CSud: PCS *p'ɛ "ground"

Kir-Abb: Nil: PWNil *piɲ "earth, ground"
[stem plus NS *ɲ n. suff.; category shift of V (expected *pɪɲ), probably reflecting earlier pl. of stem (*ɲ is often pl. marker in Kir-Abb. roots) with earth as mass pl.]

682. *p'ɛ:p'   "wing"

Koman: Gumuz *p'əp'- "wing" (SAI bəba, KOKIT p'əp'a)

CSud: PCS *ope OR *op'e "wing"
[CSud *V- pref. plus stem]

KUNAMA fefena "wing"
[stem plus NS *n n. suff.]

Kir-Abb: Nil: SNil: Kalenjin *kɛpɛ(:)p "wing"
[NS *kʰ n. pref. plus stem]

683. *p'i   "to leave alone, isolate, leave solitary"

CSud: BALEDHA b'i "to pass by without speaking to"

Sah: KANURI bìyá "only"
[stem plus NS *-ah n./adj. deriv. suff.]

Kir-Abb: PNil *-pi "only"

Rub: SOO iɓɛ' "alone"
[stem plus NS *-eh n./adj. deriv. suff., since NS *#CV# > PRub *#VC#]

Underlying Saharo-Sahelian semantic innovation: shift to intransitive, "to be alone, solitary"?

684. *p'iɗ OR *p'iɖ   "hill"

Koman: KWAMA p'idɪn "stone"
[stem plus NS *n n. suff.; semantics: old NS linkage of "stone" and "hill, mountain"]

CSud: PCS *p'i "mound"

685. *p'íɖ   "to twist (tr.)"

CSud: MM: LUGBARA opí "to wind up (watch)"   [CSud *V- pref. plus stem]

KUNAMA firfit- "to twist, wrap up, bind"   [stem plus NS *pʰ extend. intens. plus NS *tʰ cont.]

KUNAMA firga- "to wind up"   [stem plus NS *k intens.]

SONGAY bíírí "to make rope, twist between fingers to make hem"   [partially redup. stem as iter.]

Kir-Abb: Nil: WNil: NAATH piṭ "to splice"

Kir-Abb: Nil: Enil: BARI [pɪd-dya "to tie," pɪtɛt "band, bandage": LOAN from WNil]   [Bari n.: stem plus ENil *-et deverb. (NSud *ṭ n. suff.)]

686. *p'íl   "to remove covering layer from"

Koman: UDUK p'íɗ "to shell corn"

KUNAMA filla- "to unwrap, undo"

Astab: NARA filli- "to pull out"

Astab: Nub: DONGOLAWI bill- "to pick, pick apart, 'pick to pieces"

Kir-Abb: GAAM biɬ- "to reap, tear, pull out (hair)"

Kir-Abb: PNil *pelʸ "to break off by striking" (WNil: OCOLO pɛl "to break off, to chip off"; ENil: TESO a-pejal "threshing floor")   [Teso n.: stem plus NS *l n. suff.; semantics: threshing removes stalks and husks from grain]

687. *p'im   "to thump"

Sah: KANURI bám "ideophone of beating drum"

Kir-Abb: GAAM bɪm "sound of heavy falling object"

Kir-Abb: Nil: WNil: NAATH pim "to hit with hand"

688. *p'íːn   "to cover"

CSud: PCS *p'i "to put under cover (especially in order to hide)"

KUNAMA fina "gourd or earthenware bowl from which new spouse eats during honeymoon"   [semantics: "covering" > "shell" > "shell (of calabash, used as bowl)"]

Sah: KANURI bínà "bran"   [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: proto-Luo *pien "skin, hide"

Northern Sudanic semantic innovation: derivation of noun for "covering layer," hence "shell, rind," etc., from the verb. Because an original word-final *-ah would not show up today in either Kunama or Western Nilotic, the derived noun may actually reconstruct as *p'íːnah, as is attested directly in the Kanuri reflex. In that case, the addition of the Nilo-Saharan noun deriving suffix in *-ah would have been the morphological accompaniment of the semantic development.

689. *p'íp' OR *p'íːp'   "husk, shell"

Koman: UDUK àp'íp' "chaff"   [NS *a- n. deriv. pref. plus stem]

Rub: IK bíb (bíbá-) "egg"   [semantics: recurrent NS pattern of deriving words for "egg" from words for "shell": see root 71]

It is tempting to relate this root to root 688, but our knowledge at present of the phonological and morphological processes in Nilo-Saharan history do not show us how such a relationship, if it exists, could be demonstrated.

690. *p'ìs   "to break off (piece)"

Koman: UDUK p'íp'ís "to break off or crumble"   [partially redup. stem as iter. (i.e., "crumble")]

Koman: UDUK p'ísírá "small crumb"   [stem plus NS *r n. suff.]

Koman: UDUK [àp'íš "potsherd": LOAN (expected *àp'ís)]   [NS *a- n. deriv. pref. plus stem]

Astab: NARA fis "to separate, divide"

Kir-Abb: Nil: WNil: OCOLO pyet "to tear in two"

Rub: IK [pɛ́sɛ́lam "tiny pieces of food or wood": LOAN (expected *bis-)]   [stem plus NS *ɬ and *m n. suff.]

691. *p'ís OR *p'ïs   "complete"

FOR fís "full"   [FOR fís, bís "enough": semantic influence of ARABIC bas(s) "enough"]

Kir-Abb: BERTHA p'iši "good"   [semantics: as in ENGLISH "perfect"]

Kir-Abb: Nil: ENil: TESO pit "complete"

692. *p'ít'íh   "nape"

Sah: KANURI bádí "nape, base of skull"

Maban: MABA bitik, PL. biti "neck"

Kir-Abb: NYIMANG bɛɖɛ, DINIK bəṭá "neck"

Kir-Abb: Nil: ENil: Maa *-pidiŋ- "nape"   [stem plus NS *ŋ n. suff.]

Sahelian semantic innovation: Shift to "neck" in general appears in Maba and Nyimang. Maa reflex can be understood as a rederivation of the meaning "nape" via addition of the *ŋ noun suffix.

693. *p'óŋg OR *p'ôŋg   "to turn (intr.)"

CSud: PCS *p'o OR *po "to turn around (intr.)"

KUNAMA fagaid- "to change, turn into"   [stem plus NS *'y ess.-act. plus NS *ṭ caus.]

Sah: KANURI bóŋgó "round house"   [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO [puk "to turn other side up": LOAN from language in which NS *ŋg > *g or *ɠ (probably Rub), > PWNil *k /_# by regular rule]

Rub: IK buɠusút-es-uk'ot- "to turn upside down"   [stem plus NS *θ intens. plus NS *ṭ caus. (plus IK inf. suff. plus Ik itive: -es-uk'ot-)]

694. *p'óːɲ   "to peel, shell"

Koman: UDUK p'úny "to tear off, as feathers from a chicken, to cut grass"

FOR fung- "to peel"   [stem plus NS *kʰ iter.]

Kir-Abb: Nil: WNil: NAATH pwony "body"   [semantics: "to skin" > "skin" > "body"]

Kir-Abb: Nil: SNil: Kalenjin *poːɲ "to shell"

695. *p'oːr   "to roll"

KUNAMA -funfur- "to roll"   [redup. stem (*furfur- > funfur-) as iter.]

Sah: KANURI bàràm "cotton thread"; bàràm "to spin (thread)"   [n: stem plus NS *m n. suff.; v. as back-formation < n. by tone shift]

FOR furgula "rolling (of horse)" (B)   [stem plus NS *kʰ iter. plus NS *l iter. or NS *l n. suff.]

SONGAY [bórá "to roll fibers in hand to make thread": LOAN (expected long V)]   [stem plus NS *-a dispunc.]

696. p'ùk'   "to rise (of things)"

KUNAMA fuku-, fukule- "to rise, of dust, smoke, or steam"   [2nd entry: stem plus NS *l iter.]

SONGAY buɡubuɡu "to sprout densely" (P)

Astab: Nub: DONGOLAWI buɡdo "large upright
    post (supporting crossbeam of waterwheel)"
Kir-Abb: BERTHA [bók'òš- "to swell: LOAN from
    language in which NS *p' > b (Gaam group?)]
Kir-Abb: Nil: ENil: BARI pukun "to emerge unex-
    pectedly, break forth"
Rub: IK ɓuk'-et- "to lift"

697. *p'úŋk "heap, mound, lump"
KUNAMA fufuɡuna "clod, lump"

FOR fúɡó "mountain"
SONGAY bùŋɡàm "heap; to be in a heap"
Kir-Abb: Nil: SNil: DATOGA bùŋê:dà "funeral
    tower"
Rub: IK [ipunye-es "funeral ceremony (n.)": LOAN
    (expected *ɓúk-) from SNil]

698. *p'ūṭ "to pull out"
CSud: ECS *p'u "to harvest"
KUNAMA -fut-, -fuc- "to skin, remove feathers,
    depiliate"
FOR fùttó "empty"

Astab: Nub: DONGOLAWI bud "dislocated (limb)"
Kir-Abb: BERTHA p'ùd- "to open"
Kir-Abb: Nil: PWNil *puṭ "to pull out" (OCOLO
    puṭ "to pull up, pull out"; NAATH puṭ "to pull
    apart, pick")
Kir-Abb: Nil: ENil: BARI pʊtʊkɪn "to hand over"

699. *p'wéɗ "to rush about, flit about"
Koman: UDUK p'wáɗ "to whisk or pierce quickly
    through the air"
CSud: ECS *p'ɔ "to go fast, be fast"
KUNAMA frunda "corse scalmanata"; frundo- "to
    run unrestrainedly"
Kir-Abb: Nil: WNil: NAATH pɔt "to leave because
    afraid"
Kir-Abb: Nil: WNil: NAATH pʊɔt "to jump away, to
    slip away, to fear"
Rub: IK ɓoɗíɓoɗíó "butterfly"

700. *àp'à "father"
CSud: PCS *ap'a "father"
KUNAMA afa "grandfather"

[redup. stem as intens.; irregular reten-
    tion of medial NS *k' as in alternate
    Songay reflex in root 228]
[stem plus NS *tʰ n. suff.; semantics:
    rise > stand upright]
[stem plus NS *s prog.]

[stem plus ENil *-un ven.]

[stem plus IK caus. (NS *ṭ)]

[partially redup. stem plus NS *n n.
    suff.]
[stem plus NS *w n. suff.]
[stem plus NS *m n. suff.; v. < n.]
[SNil root *puŋ- plus SNil n. 2ndary
    sing. suff.]
[verbal n.; *i- v. class pref. plus stem
    plus inf. suff.; palatalization of un-
    derlying PSNil *puŋe (> *punye-)
    as reflected in DATOGA buŋe-]

[stem plus NS *w n./adj. deriv. suff.,
    with regular For gemin. of medial C
    in adj.]

[stem plus ENil benef., i.e., to pull out
    for someone else]

[stem plus NS *n dur. plus NSud *ṭ n.
    deriv. suff.; v. < n.]

[stem plus NS *-i itive, redup., plus NS
    *w n. suff.]

Sah: KANURI ava "father"
Kir-Abb: Daju: SHATT appa "father"

701. *àp'á:y "moon"
Koman: UDUK àppéé "moon"
Koman: KOMO [pai "moon": LOAN from WNil]
CSud: WCSud *ɛpɛ "moon"
Kir-Abb: Nil: PWNil *pai "moon"

[regressive V-fronting assim.]

[possible ancient loan from Koman?]

702. *e:mp' "buttock"
Koman: UDUK ēmpād "waist, hips"
FOR dibe, PL. kibeŋ "anus"
Astab: PNub e:b "tail" (KADARU èb, èbù; etc.)
Kir-Abb: proto-Daju *iibe "tail"
Kir-Abb: Nil: proto-Luo *(y)ip "tail"

[stem plus NS *ḷ n. suff.]
[stem -ib-]

Eastern Sahelian semantic innovation: shift of meaning of the noun to "tail."

PROTO-NILO-SAHARAN STEM-INITIAL *p or *p'

703. *pú:n OR *p'ú:n "fish"
Sah: KANURI búnyì "fish"

[stem plus NS *-ih n. suff. or *-ih pl.
    (as coll.)]

FOR fúún "fish"

PROTO-NILO-SAHARAN STEM-INITIAL *ṭ

704. *ṭā "to grasp, take hold of"
Koman: UDUK ṭé mèɗ "to shake hands" (mèɗ
    "hand")
Sah: KANURI tá "to hold fast, catch, seize" (H)
FOR *tai- "to catch, hold"
FOR *taib- "to load"
FOR teim- "to feel"

FOR táwá "palm of hand"
SONGAY tà "to receive, accept"
Astab: Taman: TAMA ta- "to tie"
Kir-Abb: BERTHA dà- "to give"

Kir-Abb: DINIK -ṭa-i "to catch"
Kir-Abb: Nil: WNil: OCOLO ṭac "to hold out hands
    palms up, as when receiving a gift"
Kir-Abb: Nil: ENil: MAASAI ɪtaár "to carry out one
    at a time"
Rub: SOO atac- "to choose"

[stem plus NS *'y ess.-act. (*ṭa'y)]

[stem plus NS *-i itive]
[stem plus NS *-i itive plus *p extend.]
[stem plus NS *'y ess.-act. plus NS *m
    iter. concis.]

[stem plus NS *w deverb. suff.]

[semantics: as in etymology of ENG-
    LISH give]

[stem plus NS *'y ess.-act.]

[*i- v. class pref. plus stem plus Maa
    itive (-ar)]
[stem (*at-) plus SOO -ac ven.]

705. *ṭàm   "to stick (something) out"

Koman: UDUK ṭámán "to fight with horns, as cow"   [stem plus NS *n dur.]
KUNAMA tamma- "to grope"   [gemin. as iter.?]
Sah: KANURI tàm "to stretch out one's hand to
   catch a thing"
SONGAY támtàm "to grope"   [redup. stem as iter.]
Kir-Abb: Nil: WNil: OCOLO ṭam "to grope"

Northern Sudanic innovation: narrowing of application of the verb to the reaching out of a hand to get something. "To grope," the frequentative of this meaning, was separately derived in Kunama (by gemination?) and Songay (by whole stem reduplication). The same shift in Ocolo may have been by a morphological operation obscured by Western Nilotic's reduction of all words to CVC shape, or may have been a simple meaning shift without morphological accompaniment.

706. *ṭá:pʰ   "to do poorly (in a task or activity)"

Koman: UDUK ṭáṭápʰ "carelessness, poor doing of   [partially redup. stem]
   something"
KUNAMA tafarana "failure, ruin"   [stem plus NS *r adj. suff. plus *n n.
    suff.]
KUNAMA tafoše- "to go slowly like a small child,   [stem plus NS *θ intens.]
   old man, or very tired person"
Sah: KANURI tàvár "indecent, slovenly"   [stem plus NS *r adj. suff.]
Kir-Abb: Nil: ENil: MAASAI [tápìs "sterile since   [stem plus NS *s n. suff.]
   birth": LOAN (presence of /s/)]

The Saharan and second Kunama reflexes may share in a common Northern Sudanic morphological innovation, the addition to the stem of the Nilo-Saharan modifier suffix in *r.

707. *ṭàṭ'   "to fall lightly, of rain"

Koman: UDUK ṭác'ṭác' "falling lightly (of light rain   [adv. by stem redup.]
   after a heavy rain)"
KUNAMA tatta- "to rain by drops"
Kir-Abb: Nil: WNil: NAATH ṭac "mist, moisture,
   dew"

708. *ṭé, *ṭó   "to move (toward)"

Koman: UDUK ṭóṭʰ "to move a little ways"   [stem plus NS *tʰ cont. (with regular
    Uduk progressive dental assim.)]
Koman: GULE t-əs "to go"   [stem plus GULE -əs v. suff. (infin. or
    v. n.?)]
SONGAY té "to come"
SONGAY tó "to reach"
Astab: Nub: DONGOLAWI ta: "to come"
Astab: Nub: DONGOLAWI to: "to enter, come in"
Kir-Abb: BERTHA (M) àdá "to go"
Kir-Abb: BERTHA (M) ádò "to come"
Kir-Abb: TEMEIN ɛṭɛ "to come"
Kir-Abb: TEMEIN ɔṭɔ "to go"
Kir-Abb: Nil: WNil: JUMJUM əṭə "to go"
Kir-Abb: Nil: ENil: BARI tu "to go" (ìti "go!")
Rub: IK it-et- "to come back, return"   [*i- v. class pref. plus stem (of which
    *-ṭ- remains) plus Ik ven.]
Rub: IK ìtɛ-, ìtɔ- "to reach"   [*i- v. class pref. plus stem *-ṭ-, with V
    derived from V of attached infin.
    suff., either -ɛs or -ɔn]

This root is one of several in Nilo-Saharan of *CV shape and denoting going/coming, for which the single stem consonant remains stable but different vowels, possibly originally of directional implication, can be substituted. See also roots 1029, 1289, 1303, 1372, and 1472.

709. *ṭèm   "to set fire to, ignite"

Koman: UDUK ṭēnṭēm "to melt"   [redup. stem as extend.]
CSud: MM: LUGBARA àtïlíkö "fireplace (outside   [CSud *V- pref. plus stem (*-te-) plus
   house)"   CSud *-ïV and *-ko n. suff.]
Sah: KANURI tèm "to touch off"
Kir-Abb: Nil: ENil: TESO e-tem "hearth (outside
   house)"

710. *ṭél   "to clear"

Koman: UDUK ṭáláɗ "to reflect"   [stem plus NS *l intr.; semantics: be-
    come clear, hence, shine, reflect]
Sah: KANURI tàlá "to empty out" (H)   [stem plus NS *-a dispunc.]
SONGAY tálà "baldness"   [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: NYIMANG ṭeṭɛr, ṭeṭɛl "clear"   [adj. by partially redup. stem]

711. *ṭèr   "to spread open, spread apart (tr.)"

KUNAMA tenter- "to lift leg to someone (suggestive   [< *terter-, redup. stem as iter.]
   movement allowed in dancing)"
Sah: KANURI tàr "to spread out, lay out"
SONGAY tèndèr "to spead out to dry"   [< *terter-, redup. stem as extend.]
Kir-Abb: Nil: WNil: OCOLO ṭɛr "to show openly"
Rub: IK ter- "to divide, separate"
Rub: IK terém- "to scatter"   [stem plus *m iter. conc. as intr.]
Rub: IK tereti- "to cut into small pieces"   [stem plus NS *tʰ cont. plus NS *i itive]

712. *ṭíáp "to examine" / *ṭéáp   "to look for"

Koman: UDUK ṭápʰ bwà "to sort out good or ripe"   [1st root shape (see root 14 for the same
   (bwà "inside")   sound coalescence in Uduk)]
CSud: MM: ECS *tɛ "to look for"   [2nd root shape]
KUNAMA šibbo- "to watch, observe"   [1st root shape]
SONGAY tàbà "to taste"   [2nd root shape]
Kir-Abb: GAAM tówn- "to taste"   [1st root shape plus NS *n dur.]
Kir-Abb: GAAM tiwn- "to try, examine"   [2nd root shape plus NS *n dur.]
Kir-Abb: Nil: WNil: Jyang-Naath *ṭiap "to taste (?)"   [1st root shape]
   (NAATH ṭiap "to examine"; JYANG ṭiep "to
   taste"
Rub: IK tibi- "to be visible"   [stem plus NS *i itive; tr. > intr.]

For other examples of this vowel alternance and its semantic effects, see note to root 126. Sahelian semantic innovation: The Songay reflex, the first Gaam form, and the Jyang word attest a common narrowing of the meaning to examining by tasting (for a comparable semantic linkage, cf. ENGLISH taste, test, although Jyang seems, differently from the other two, to have used the first root shape to express this meaning.

713. *ṭí:kʰ   "thin strand; reed"

Koman: UDUK ṭíkʰ "reed for arrowshaft"
Koman: GUMUZ tixa, DISOHA ṭɛha "root"
KUNAMA šika "reed, rush"

Sah: KANURI tíktígà "feather"

[redup. stem plus NS *-Vh n. suff.; se-
mantics: "strand" > "hair, fur" >
"feathers"]

Kir-Abb: Nil: SNil: Kalenjin *tiːkiːt "root"

[stem plus NS *tʰ n. suff.]

The additional suffixation of the Kalenjin reflex and its isolated occurrence within Nilotic suggest
that separate derivations of the meaning "root" took place in it and in Gumuz.

714. *ʈíp   "to divide into portions, distribute"

Koman: UDUK ʈípʰ "to give food and things daily"
(to care for in the sense of providing)
SONGAY tìbì "to take a handful of something"
Kir-Abb: Nil: WNil: NAATH ʈip "to distribute,
divide among"

Rub: IK téb- "to distribute"

[This example together with 3rd Ik entry
indicates that this PNS root, like a
number of others, once had high/mid
stem-vowel alternant forms, *ʈɛp
and *ʈip]

Rub: IK tébɛt- "to get, receive"

[stem plus IK ven.]

Rub: IK tébet- "to take out (a handful)"

[*tib-et-, stem plus IK ven., with regres-
sive V assim.]

715. *ʈís OR *ʈíːs   "to be finished, used up, cease to function"

Koman: UDUK ʈís ē "to forget, lose, doubt; to be
suddenly gone, lost" (ē "amid")
CSud: ECS *tsi "to finish, end"
FOR tíssá "rotten (smell)

[stem plus NS *-ah n./adj. deriv. suff.,
with regular For gemin. of medial C
in adj.]

Kir-Abb: Nil: ENil: TESO titai "in vain; free"

[stem plus NS *y n./adj. suff.]

Rub: NYANG'I tisit "tail"

[stem plus NS *tʰ n. suff.; semantics:
"tail" as "end of the body"]

Rub: IK tits- "to say there is nothing"

[this reflex implies original PNS *ʈiṣ,
however]

716. *ʈíːθ OR *ʈíːθ   "new"

Koman: UDUK ʈīs, ʈīʈʰ "new, next"
KUNAMA šiša "time when fields begin to produce
ears of grain"

[semantics: time of new, not yet ripe ears
of grain]

Kir-Abb: Nil: WNil: NAATH tiʈ "raw"
Kir-Abb: Nil: ENil: TESO -tet "fresh, new, young"

Northern Sudanic semantic innovation: the development of a complementary sense to this adjec-
tive, "new" > "raw, not ripe, immature."

717. *ʈìːʈ' OR *ʈíːʈʰ   "to spill"

Koman: UDUK ʈīʈ' ɖàràc' "to urinate" (ɖàràc'
"urine")
CSud: ECS *ti OR *t'i "to overflow"
Astab: Nub: DONGOLAWI tiss- "afterbirth"

[*tiss- < *tits-, stem plus NS *s n. de-
riv. suff.]

Kir-Abb: Nil: PWNil: *ʈiʈ "to spill" (NAATH tieʈ "to
pour a little on"; OCOLO ʈiʈ "falling off of water
running through a cloth")

[regular Naath regressive dissim. of 1st
of two consecutive dentals in a
word]

Kir-Abb: Nil: SNil: Elgon-Mau [*tis "to cool off
(tr.)": LOAN (expected *tit)]

718. *ʈíwm   "to finish, complete"

Koman: UDUK ʈím "to finish"
CSud: PCS *tu OR *t'u "all"
KUNAMA tumma "all"
Sah: KANURI tə́m "ideophone of dying animal"
FOR time "total" (B)
SONGAY tímmè "to be finished"
Maban: MABA dum "all"
Kir-Abb: Nil: WNil: OCOLO ʈum "to finish"

[stem plus NS *-eh or *y n./adj. suff.]
[stem plus Songay -e ext.?]

PRub *timuɲ "tail" or "buttocks"

[stem plus NS *ɲ n. suff.; semantics:
end of body (as in Nyang'i entry in
root 715 above)]

The use of this root to mean "all" was apparently a very early development. Since this usage is not
known as yet from Koman, it may be a development of the Sudanic stage. The Kanuri ideophone,
on the other hand, carries the old sense of being finished, as do the Nilotic and Rub reflexes,
showing that "all" was from early times a coexisting meaning. The same semantics—"complete" >
"entire" > "all"—can be seen also in the Ocolo reflex of root 566.

719. *ʈóːɖ   "to remove"

Koman: UDUK ʈóɗ "to scrape together (scattered
grain) and put in other container"
CSud: ECS *tro "to take off (covering layer)"
KUNAMA turku- "to tear, snatch, tear off, uproot"
Sah: KANURI tə́rə́l "to squeeze down and remove
from surface"
SONGAY tóorú "to slaughter chicken with finger-
nails in manner of Songay sacrifice"
Kir-Abb: Nil: ENil: BARI tod-du "to press, squeeze,
squeeze out"

[semantics: remove and put somewhere
else]

[stem plus NS *kʰ iter.]

[stem plus NS *l iter. (> Kanuri in-
tens.)]

[stem plus NS *-uh ven.]

A series of logically successive semantic shifts can be argued to characterize the reflexes of this
root in successively narrower subgroupings of the Nilo-Saharan family. Northern Sudanic se-
mantic innovation: A narrowing to removal specifically by grasping with the hands seems indi-
cated in the Kunama as well as the Kanuri, Songay, and Bari reflexes. Saharo-Sahelian semantic
innovation: A still narrower application of the verb specifically to squeezing tightly or roughly
with the fingers in order to remove can be argued to underlie the Kanuri, Songay, and Bari out-
comes. Sahelian semantic innovation: A further shift of focus to the act of squeezing itself, with-
out necessarily removing, can be seen in the Songay and Bari reflexes.

720. *ʈɔ̀ːk   "to strike with a pointed object"

Koman: UDUK ʈôkʰ "to shoot at moving object"
KUNAMA togola, tokola "peg, forked stick, small
pieces of wood driven into tree for climbing it"
SONGAY táají "awl, punch"
Rub: IK tɔkéér- "to butcher a goat"

[stem plus NS *l n. suff.]

[stem plus NS *-ih n. deriv. suff.]

[stem plus NS *'y ess.-act. plus NS *r
iter.]

721. *ʈɔ́n   "narrow point or blade"

Koman: UDUK ʈón "iron pointed arrow"
CSud: ECS *tɔ OR *t'ɔ "(spear)spike"
Kir-Abb: Surmic: MURLE ɔtɔn "horn"

[NS *o- n. deriv. pref. plus stem]

722. *ʈɔ̀s   "to put, set"

Koman: UDUK ʈ̣ósōn "to prepare, arrange, fix, mend"   [stem plus NS *n dur.]

Sah: KANURI tás "ideophone of something placed or set down"

Kir-Abb: Nil: WNil: OCOLO ʈ̣oʈ̣ "to give"   [regular Ocolo dental assim.]

Rub: IK tɔs-ɛt- "to pick, take, choose"   [stem plus Ik ven., thus shifting direction of action from putting to taking]

723. *ʈừːl OR *ʈūːl   "to be(come) low, lower oneself"

Koman: UDUK ʈ̣ūl "to dismount"

CSud: PCS *tru "to be stunted"

Astab: Nub: DONGOLAWI tuːle "to stoop, bend down, bow"   [stem plus NS *'y ess.-act. (> Nubian *-e)]

Kir-Abb: Nil: ENil: MAASAI ol-túli "buttocks"   [semantics: buttocks as the joints used in bending down]

Eastern Sahelian semantic innovation: A shift to the specific sense of lowering oneself by bending down is either directly attested (as in Nubian reflex) or implied (as in Maasai).

724. *ʈúŋkʰ   "to follow"

Koman: UDUK ʈ̣úkʰ gwò "to trace a thought through" (gwò "word")

Koman: UDUK ʈ̣úkʰ kī ē "to follow with the eyes" (kī "with"; ē "eyes")

Koman: UDUK ʈ̣úkʰ šōk' "to follow track of animal" (šōk' "foot of animal")

Sah: KANURI tə̀ŋgák "to put side by side, compare"   [stem plus NS *k caus.]

Kir-Abb: GAAM túú- "to imitate"

725. *ʈúθ OR *ʈúːθ   "bad thing"

Koman: UDUK ʈ̣ús "bad thing"

CSud: PCS *tsu "poison"

KUNAMA tušikara "ugly, foul"   [stem plus NS *k and *r adj. suff.]

Astab: NARA [tuša "filth": LOAN from Kunama (/š/ for expected *s)]

PROTO-NILO-SAHARAN STEM-INITIAL *ʈʰ

726. *ʈʰaŋ   "to stretch out, increase in length or height"

KUNAMA taŋo- "to rise"

KUNAMA taŋa "high, tall, upright"

Kir-Abb: Nil: WNil: OCOLO ʈ̣aŋ "to stretch out (e.g., hand)"

Rub: IK taŋatsár- "to stand with legs open"   [stem plus NS *ṣ caus. plus NS *r iter.]

This root is reconstructed with initial *ʈʰ, rather than *ʈ or *ʈ', because it argued here to be the source of root 727 following, which see for further discussion.

727. *ʈʰàŋ OR *ʈʰāŋ   "ox, bull"

Kir-Abb: BERTHA θàŋ, PL. θáːŋì "cow (generic)"

Kir-Abb: proto-Daju taŋan- "bull"   [stem plus NS *n n. suff.]

Kir-Abb: Surmic *taŋ "cow (generic)"

Kir-Abb: Nil: SNil: Kalenjin *taɲ "cow (suppl. sing.)"   [*ŋ > *ɲ shift can be explained by assuming a former sing./pl. pair *taŋ "cow"/*taɲ "cattle," constructed according to the old Kir-Abbaian pattern seen in "eye," root 1379, with loss of the old sing. and shift of the old pl. to sing. usage, probably via an intermediate usage as a coll.]

This root has been asigned the meaning "ox, bull" despite its more often being realized today as a generic term for cow, for two reasons. First, that meaning allows it to be plausibly derived from the preceding verb root 726, as descriptive of the greater size of male cattle. Second, the generalization of a term for male cattle to cover all cattle is a much more common direction of change than a narrowing of a generic term to cover just male cattle. Although limited to the Kir-Abbaian tongues, this root requres separate consideration here because its reflexes have frequently in the past been confused (by the writer, among others) with those of a distinct root *Te (see 762). From the reconstructions provided in Franz Rottland (1982), it becomes clear that these two have to be considered distinct roots.

728. *ʈʰàːt'   "to pound (in making tools?)"

Koman: UDUK ʈ̣ʰāʈ̣' "to castrate by pounding"

Koman: UDUK ʈ̣ʰáʈ̣' "wooden hammer"   [n. < v. by tone shift]

SONGAY táarà "anvil"   [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: PWNil *ʈat "to pound"

Kir-Abb: Nil: WNil: Jyang-Naath [*ʈaʈ "to forge iron": LOAN from Luo (shows Luo dental assim.)]

Kir-Abb: Nil: ENil: Ateker [*-tat "to forge iron": LOAN from WNil]

Might this root originally have referred to the hammering involved in stone tool making? The separate reapplication in Songay and Nilotic of this root to things or actions relating to iron forging suggests this possibility.

729. *ʈʰét'   "to hurry, do quickly"

Koman: UDUK ʈ̣áʈ̣àʈ̣ʰāʈ̣ā' "fast and furious" (of grinding grain)   [adv. by redup. stem plus NS *-Vh n./adj. suff.

SONGAY tárù "to hurry up, make haste"   [stem plus NS *-uh ven.]

Kir-Abb: Nil: WNil: OCOLO ʈ̣eʈ̣ "to hurry, do quickly"   [regular Luo dental assim.]

730. *ʈʰíŋk'   "stick"

Koman: UDUK cʰíŋkírá' "sticks, twigs"   [stem plus NS *r and *-ah n. suff.]

CSud: ECS *ti OR *t'i OR *tri "log, pole"

KUNAMA tinkiša "rod, wand, crutch, old person's staff"   [stem plus NS *ʈʰ n. suff.]

Sah: KANURI tígə̀ "body"   [stem plus NS *-Vh n. deriv. suff.; semantics: "stick" > "trunk" > "body"]

731. *ʈʰít' OR *ʈʰíːʈ'   "to set afire"

Koman: UDUK cʰít' "to kindle, light, set afire"

KUNAMA títti- "to flame, make sound of flames of fire"   [gemin. as iter.]

Kir-Abb: Nil: PWNil *ʈiʈ "to become red" (JYANG ʈiet "to become red," ʈiʈ "crimson"; JUMJUM ʈidaŋ, MABAAN ʈiʈidu "red")   [Jumjum: stem plus NS *ŋ n./adj. suff.]

Kir-Abb: Nil: WNil: NAATH tiɛʈ ɛ cuɛʈ "very hot, red hot" (cuɛʈ "ray, beam") — [regular Naath regressive dissim. of 1st of two successive dentals]

732. *ʈʰól   "to curve, bend, turn (intr.)"

Koman: UDUK àʈʰŏl "girdle of beads, worn loosely" — [NS *a-ʈ. deriv. pref. plus stem]

KUNAMA talima "exercise, training, gymnastics" — [stem plus NS *m n. suff.]

Astab: NARA tol "to carry on trade, buy, sell" — [semantics: "turn" > "change" > "exchange," i.e., trade]

Kir-Abb: Nil: PWNil *ʈol "snake"

Kir-Abb: Nil: WNil: NAATH ʈɔl "to bend and turn"
Kir-Abb: Nil: WNil: NAATH ʈul "bends (of river)"
Kir-Abb: Nil: ENil: BARI lɔtulur "round" — [Bari *lV- adj. forming pref. (NS *l) plus stem plus *r or *d adj. suff.]

Kir-Abb: Nil: ENil: BARI tutulute, PL. tutuluk "small, round object" — [partially redup. stem]

Rub: IK [tolí- "to creep": LOAN (expected *toł-)] — [stem plus NS *i itive; semantics: to move bent over or bending along the ground (as a snake)]

733. *ʈʰɔ́ɲ   "to raise"

Koman: UDUK ʈʰūny šūš "to turn up nose" (šūš "nose")

KUNAMA toŋa- "to raise" — [< earlier KUNAMA ɲ~ ŋ altern.]

Sah: KANURI tàn "to stretch out, spread out"
SONGAY tòntòn "to add, increase, raise, lengthen, add up" — [redup. stem]

SONGAY tóndì "mountain, stone" — [stem plus NSud *ʈ n. deriv. suff.]

Kir-Abb: NYIMANG ʈɔ́ŋ "up" — [proposed explanation of *ŋ for expected *ɲ: influence of root 726, *tʰaŋ "to increase in length or height"]

Kir-Abb: proto-Daju *toɲ "to build" (SHATT tuɲ, LIGURI toɲ)

Kir-Abb: Nil: WNil: JYANG ʈuany "lump"
Kir-Abb: Nil: ENil: TESO -tonyuon "to arouse" — [stem plus Ateker ext., probably *-u incep., plus form of ENil *-un ven.]

734. *ʈʰɔ́s OR *ʈʰɔ́ːs   "cold"

Koman: UDUK ʈʰósʈʰós "cool, fresh" — [adj. by redup. stem]

KUNAMA tošima "cold (of body) from water or wind" — [stem plus NS *m adj. affix]

Astab: Nub: MIDOB tussé "cold" — [stem plus NS *y n./adj. suff.]

735. *ʈʰū́ːd   "to strike with hafted tool"

Koman: UDUK àʈʰúrmäny "large-headed ax" — [NS *a- n. deriv. pref. plus stem plus NS *m n. suff. plus NS *ɲ n. suff.]

FOR tùùr "hoe" — [n. < v. by tone shift]
Kir-Abb: Nil: PENil *-tur "to dig" (MAASAI -túr)

Sahelian semantic innovation: The For and Nilotic reflexes share a specification of the verb to an action involving the striking of the ground, i.e., digging, whereas the Koman noun implies the kind of striking done in chopping.

736. *ʈʰúːt'   "to not work right or well"

Koman: UDUK ʈʰúʈ' míí "to be careless" (míí "to do")
KUNAMA tutu- "to be defective"
Kir-Abb: GAAM turnas- "to be difficult" — [stem plus NS *n dur. plus NS *s prog.]

737. *āʈʰ OR *āːʈʰ   "to fail, cease functioning"

Koman: UDUK āʈʰ "to lack, fall short of; to miss"
CSud: BALEDHA tă "maigrir" — [earlier CSud *Vta, CSud *V- pref. plus stem, explains rising tone (VCV regularly > Baledha CV (rising tone incorporates tone of lost syllable)]

KUNAMA atim- "to become ruined, spoiled" — [stem plus NS *m adj. affix (usual KUNAMA -ima), with v. < earlier adj.]

PROTO-NILO-SAHARAN STEM-INITIAL *ʈʰ or *ʈ

738. *ʈʰɔ́ɲ OR *ʈɔ́ɲ   "to burn (of fire, intr.)"

CSud: PCS *to OR *ʈ'o "to burn (intr.)"
SONGAY tón "to burn, cook in ashes"
Maban: MABA nduny- "to light, kindle" — [MABA n- caus. plus stem]
Kir-Abb: DINIK ʈòs-ì "to burn (intr.)" — [< *ʈoɲs-, stem plus NS *s prog.]
Kir-Abb: DINIK ʈòj-ì "to burn (tr.)" — [< *ʈoɲš-, stem plus NS *š caus.]
Kir-Abb: proto-Daju *tuɲ- "to burn"
Kir-Abb: Nil: WNil: NAATH ʈuny "to smoke out"
Kir-Abb: Nil: WNil: JYANG ʈuony mac "ember" (mac "fire")

PROTO-NILO-SAHARAN STEM-INITIAL *ʈ'

739. *ʈ'à OR *ʈ'ā   "to kindle, make burn"

Koman: UDUK ʈ'à "to make fire"
Koman: OPO ta: "sun"
Koman: GULE ta' "sun" — [presumed structure as in GULE entry] — [stem plus NS *-Vh n. deriv. suff.]
CSud: PCS *ta OR *ʈ'a "cooked food"
Kir-Abb: Nil: WNil: NAATH ʈat "to put food on fire" — [stem plus NS *tʰ cont. (Naath lacks dental assim. rule of some other WNil languages]

Possible Sudanic semantic innovation: narrowing of the application of the verb to a particular kind of making something burn—cooking—is implied by both the Central Sudanic and Nilotic meanings. Koman innovation: derivation of word for "sun" from the verb.

740. *ʈ'àːp   "to feel bad, have bad feeling"

Koman: UDUK ʈ'àpʰār "to be sad; to not feel like doing anything" — [stem plus NS *r or *d adj. suff.; v. < earlier adj.]
Koman: UDUK ʈ'àpʰāráʈ'àpʰār "tasteless, dull, sad, ailing" — [adj. by redup. of v. stem]

SONGAY táabì "to suffer, endure, bear"   [stem plus NS *'y ess.-act.]
Kir-Abb: GAAM tə̄w- "to discourage"
Kir-Abb: GAAM təwən- "to become tasteless"   [stem plus NS *n dur.]
Rub: IK ts'áb- "to hate"

741. *ʈ'ɛ́*   "to help"

Koman: UDUK ʈ'ē, àʈ'ē "beneficent, generous"   [2nd form: NS *a- attrib. pref. plus stem; lowered tone on 1st form shows it to be a back-formation from 2nd shape]

KUNAMA tate- "to teach first steps to baby, escort child by the hand, teach first steps of invalid after long confinement"   [redup. stem as iter.]

SONGAY tété "to hold child by hand to teach him to walk"   [redup. stem]

Northern Sudanic innovation: reduplicated stem with application to a specific kind of durative assistance, "to help in walking."

742. *ʈ'ɛ́k*   "to be heavy, difficult to do"

Koman: UDUK ʈ'īkʰáʈ'īkʰ "fat"   [adj. by redup. stem]
Koman: GULE tiges "hard"   [stem plus NS *ṣ or *s n./adj. suff or else usual GULE -Vs v. suff. (infin.?)]

KUNAMA tagima "heavy, difficult"   [stem plus NS *m adj. affix]
Sah: KANURI tàgə̀r "to be too difficult"   [stem plus NS *r iter. or else *r adj. suff. with v. < earlier adj.]

Sah: KANURI tàgə́t "ideophone of something surprisingly heavy for its size"   [stem plus NS *tʰ cont.]

Kir-Abb: Nil: PWNil *ʈıɛk "heavy, difficult"

743. *ʈ'è:kʰ* OR *ʈ'é:kʰ*   "to whirl (tr.)"

Koman: UDUK ʈ'ēkʰ "to bore, make fire with firestick, spin round like top or windmill"
KUNAMA tiki- "to whirl, stir, mix"

744. *ʈ'ɛ́l*   "to teeter, be about to fall"

Koman: UDUK ʈ'íl "to set down precariously, to sit precariously"

KUNAMA talu- "to fall down"   [stem plus NS *-uh ven.?]
Sah: KANURI tálə́p "ideophone of someone very drunk"   [stem plus NS *pʰ extend. intens. or *p extend.]
Kir-Abb: proto-Daju *tel- "to fall"
Kir-Abb: Surmic: DM *tel- "to fall"

Northern Sudanic semantic innovation: shift of application of the unmodified verb to outright falling. The extended shape seen in Kanuri retains the older sense and confirms its priority.

745. *ʈ'èyk'* OR *ʈ'ēyk'*   "to stay (in a place)"

FOR tige "hamlet"   [stem plus NS *-eh n. deriv. suff.; semantics: stay in a place > dwell > n. for "dwelling place"]

Astab: PNub *teyk "to stay" (DONGOLAWI tɛːg "to sit, squat, settle, reside, stay, be present"; DILING tek-i "to stand"; NOBIIN tìig- "to sit")

Kir-Abb: BERTHA s'ìk'- "to be (in a place)"
Kir-Abb: NYIMANG ʈìg, ʈàg "to stand"
Kir-Abb: Surmic: MAJANG -tɪk- "to stand"
Kir-Abb: Nil: ENil: BARI tig-gö "to stay long in a place"

746. *ʈ'ɛ́ŋkw*   "nit"

Koman: Gumuz *t'əŋgwa "louse" (SESE t'əŋwa, GUMUZ t'oŋgwa, etc.)
KUNAMA tenka, tinka "nit"
Kir-Abb: GAAM jınd, PL. jıŋg "louse"
Kir-Abb: BERTHA dí:ɲí "louse"   [probably actual pl., stem with Jebel V lengthening in some pl. forms and probably NS *-ih pl. suff.]

Kir-Abb: proto-Daju *tiŋgar- "louse"   [stem plus NS *r n. suff. (KA *N > Daju *NC /CV_VC)]

Kir-Abb: Nil: SNil: NANDI tiŋwic "mosquito"   [stem plus NS *tʰ or *ṣ n. suff.]

The Kir-Abbaian languages first emerged as a distinct subgroup of Nilo-Saharan in the region adjoining the Gumuz lands near the Blue Nile (Ehret 1983), and thus ancient areal influence can be suspected to account for the common meaning seen in the Kir-Abbaian and Gumuz reflexes. For that reason, and because an alternative early root (808) clearly denoting the louse can be reconstructed, the meaning "nit" seen in Kunama was chosen as the most probable original sense of the root found here. An apparent regular Jebel-group sound shift, voicing and palatalizing PNS *ʈ' preceding Kir-Abbaian *i is indicated clearly for Gaam in this root and in root 754 below and for Bertha (in which /d/ < earlier *'j in pre-Bertha).

747. *ʈ'ɛ́:r*   "to be sharp"

Koman: UDUK ʈ'árʈ'ár "very sharp"   [adj. by redup. stem]
CSud: PCS *atrɛ "to sharpen"   [CSud *V- pref. (here *a- tr.) plus stem]
Kir-Abb: Surmic: SWSurmic: TIRMA ʈɛʈɛra "claw"   [partially redup. stem]
Kir-Abb: Nil: WNil: NAATH ʈɛr "to sharpen"

748. *ʈ'ɛ́z*   "liver"

KUNAMA desa "liver"
SONGAY tásà "liver"
Kir-Abb: Nil: ENil: TESO a-tid "spleen"

749. *ʈ'í*   "to set down"

Koman: UDUK ʈ'í "to lay down child or large object handled by two people"
CSud: BALEDHA d'í "to alight, perch"
Astab: Taman: TAMA ti: "give!"
Astab: PNub *ti(r) "to give" (DILING ti, etc.)   [*-r in Nile Nubian forms may reflect influence from a different root, 813]

Astab: Nub: DONGOLAWI tin, tiŋga:r "west" (-ga:r "bank")   [stem plus NS *n n suff.; semantics: where the sun SETS]

Kir-Abb: Nil: ENil: BARI tín-(dù/dyà) "to give, produce, hand over, let, put, set, supply, provide"   [stem plus NS *n dur.]

Eastern Sahelian semantic innovation: An underlying specialization of the meaning of this verb to setting down with the purpose of providing to someone else is seen in both the Astaboran and Bari reflexes. Western Astaboran semantic innovation: shift of meaning from this proposed intermediate Eastern Sahelian sense to "to give."

750. **ṱ'ì* **"to scrape off, wipe, rub"**

Koman: UDUK ṱ'ǐ "to shave"

CSud: BALEDHA d'ĕ "to crack, eat away (skin by skin disease)" — [BALEDHA Cĕ < earlier *VCi, CSud *V- pref. plus stem; d' < PCS *t']

KUNAMA ti- "to clean, curry, wash, rub, wipe, polish"

Astab: NARA ši, PL. šita "fingernail, toenail" — [semantic shift in underlying v.: scrape > scratch]

Rub: IK ts'ıts'- "to be pointed, sharp" — [stem plus NS *ṱ' iter. intens.; semantics: < earlier tr. sense "to whet"]

751. **ṱ'í* **"to drain (intr.), run out"**

Koman: UDUK ṱ'í "to have dysentery"

Sah: KANURI tín "to blow mucus from nose" — [stem plus NS *ŋ punc. (with stem V lengthening)]

FOR ti- "to wring, strain"
FOR tinyor "strainer" — [stem plus NS *ɲ extend. plus NS *r n. suff.]

Kir-Abb: Nil: PWNil *ṱıŋ "to filter, strain (beer)" — [stem plus NS *ŋ punc.]

Kir-Abb: Nil: ENil: BARI tı "to filter, strain (by drops)"

Rub: IK [ıtıw- "to strain, filter": LOAN (expected *ıts'- or *ts'ıw-), probably from ENil] — [*i- v. class pref. plus stem plus NS *w punc.]

Sahelian semantic innovation: shift of verb to transitive application with a specialization of its meaning to a particular kind of running out, straining or filtering.

752. **ṱ'íl* **"short"**

Koman: UDUK ṱ'íláṱ'ìl "narrow (of opening)" — [adj. by redup. stem]

CSud: MM: LUGBARA kátrí "short, dwarfish" — [NS *kʰ n./adj. pref. plus CSud *V- n. pref. plus stem (CSud *tri > LUGBARA trï /a_)]

Kir-Abb: proto-Daju *təlaŋ "short" — [stem plus NS *ŋ n./adj. suff.]

753. **ṱ'iːn* **"thin, small"**

KUNAMA [šinna "female": LOAN, probably originally from Nara (expected *tin-)]

Sah: DAZA, TEDA tini "thin"

Astab: NARA šiːn "small"

Kir-Abb: Surmic: SWSurmic *t'ini "small"

Kir-Abb: Nil: proto-Luo *ṱın "small"

754. **ṱ'ír* **"to grab, seize and hold tightly"**

Koman: UDUK ṱ'ír "to wrestle"

Sah: KANURI tármós "to leap on and attack" — [stem plus NS *m iter. concis. plus NS *θ intens.]

Kir-Abb: GAAM jírd- "to press" — [stem plus NS *tʰ cont.]

755. ṱ'ír **"to be very heavy"**

Koman: UDUK ṱ'ír "to be too heavy to carry"

CSud: MM: LUGBARA trikítrikí "heavy" — [stem plus NS *k adj. suff., redup.]

KUNAMA [šireba "overloaded": LOAN (expected *tirb-)] — [stem plus NS *p extend.; not known from Nara as yet, but shows Nara sound shift (*ṱ' > š)]

Sah: KANURI tárám "ideophone of quantity, size, or completeness of pile or collections of things" — [stem plus NS *m iter concis. or *m adj. affix]

Kir-Abb: proto-Daju *tətər "heavy" — [partially redup. stem]

756. **ṱ'ít* OR **ṱ'ítʰ* **"to be tight, constricted (of opening)"**

Koman: UDUK ṱ'ítʰ "to be too small to fit; to exceed size of hole"

KUNAMA titimi- "to be narrow, tight, constricted" — [stem plus NS *m adj. affix, with v. < earlier adj.]

Other possible reconstructions: *ṱ'íːt or *ṱ'íːtʰ.

757. **ṱ'óːθ* **"to pour in narrow stream"**

Koman: UDUK ṱ'ús, ṱ'úṱʰ "to pour into small mouthed containers"

CSud: MM: LUGBARA tsúrúkúlú "watery" — [stem (*tsu) plus NS *r, *k, and *l adj. suff. (seemingly very redundant, but nevertheless a common pattern of affixation in Lugbara)]

SONGAY tóosì "to urinate" — [stem plus NS *-i itive]

Astab: NARA tusa "urine" — [stem plus NS *-ah n. deriv. suff.]

Sahelian semantic innovation: narrowing of meaning of the root to a particular kind of pouring in a narrow stream, namely, urination.

758. **ṱ'òr* **"to flow"**

Koman: UDUK ṱ'ônṱ̮ör "to flow slowly in small amounts" — [stem partially redup. as iter.]

CSud: BALEDHA d'rŏ "to pour, spill"

Kir-Abb: NYIMANG ṱɔrn- "to pour" — [stem plus NS *n dur.]

Kir-Abb: Nil: PWNil *ṱʊɔr "to float"

Kir-Abb: Nil: ENil: BARI tʊrɛt, PL. tʊrɛsi "funnel" — [stem plus ENil *-et deverb. suff.]

Rub: IK ts'or- "to draw blood from a cow to drink" — [tr. sense]

759. **ṱ'òw* **"to cease to function, stop doing"**

Koman: GULE -tɔs "to kill" — [stem plus NS *ṣ caus.?]

CSud: BALEDHA d'ŏ "prendre fin, finir"

KUNAMA tu- "to die"

FOR tuo- "to be unable"

Kir-Abb: C.Jebel: MOLO took- "to finish" — [stem plus NS *w punc. (> -o#)]

Kir-Abb: PNil *ṱɔw "to die" (PWNil *ṱɔw "to die"; PENil *-túá(n)- "to be dead") — [stem plus NS *k caus.]
[ENil: stem plus NS *-a neuter (plus NS *n dur.)]

Rub: IK ts'ooniam, PL. tsooniik "dead person" — [stem plus NS *n modif. suff. plus Ik number suff.]

Rub: IK ts'e-it- "to extinguish (fire)" — [stem plus NSud *ṱ caus., with regressive V assim.]

Shared semantic innovation, "to die," seen in Kunama and Eastern Sahelian reflexes seems to link these two groups and exclude For. But its impact as a counter-example to the linkage of For and Eastern Sahelian in the Sahelian branch is vitiated by its coexistence in Nilotic with a second Nilo-Sahara root, *yɛh, (1492) used synonymously for "to die," and by its linkages elsewhere, in Gule and Ik, to death. The meaning "to die" is thus probably a very old secondary euphemistic usage.

760. **ṱ'úr* **"to rub"**

Koman: UDUK ṱ'úr mèd' "to wash hands" (mèd' "hand")

Sah: KANURI tə́rmás "to massage limbs" (H)

[stem plus NS *m iter. concis. plus NS *s prog.]

Kir-Abb: Nil: ENil: BARI tʊtʊr-jʊ "to shape"

[partially redup. stem as iter.; semantics: "to mold, shape by rubbing"]

PROTO-NILO-SAHARAN STEM-INITIAL *ʈ, *ʈʰ, or *ʈ' (*Ʈ)

761. *ʈáy OR *ʈʰay OR *ʈ'ay   "to be wet"

FOR tèyyé "clean"

[stem plus NS *-Vh n./adj. deriv. suff., with regular For gemin. of medial C in adj.; semantics: be wet > be washed, hence clean]

SONGAY téy "to be wet"

Kir-Abb: Nil: PWNil *ʈay- "wet"

762. *Ʈé OR *Ʈéh   "cow"

CSud: ECS [*tí "cow": LOAN from probably Western Astaboran language (expected *tɛ)]

CSud: WCSud: BAKA [ɪ́tí "cow": LOAN from Moru (ECS)]

[CSud *i- pref. (otherwise found only in reflex in neighboring Moru language) plus stem]

Maban: MABA dek, PL. de "cow"

Astab: Taman: TAMA téé, PL. tèè "cow"

[V length probably reflects underlying *tey, stem plus NS *'y n. suff., as in Nubian reflexes]

Astab: PNub *tey "cow" (KADARU té, PL. té:, DONGOLAWI ti:, MIDOB təə, etc.)

[stem plus NS *'y n. suff.]

Kir-Abb: GAAM tɔ́ɔ́, PL. tóg "cow"

[sing.: possible distinct root *tom (recorded in older less reliable source), with which one can compare Didinga-Murle (Surmic) *tomot "bull"]

Kir-Abb: TEMEIN ŋʈɛŋ, PL. kiʈuk "cow"

[sing.: prefixed redundant sing. marker in *n; pl.: Temein double affixation of NS *kʰ pl. affix]

Kir-Abb: proto-Daju *tenye, PL. tuke "cow"

[sing.: *ŋ > *ny /e_e]

Kir-Abb: Surmic: DM *té:n- "cattle"

[stem plus NS *n suff., here pl. marker in *n]

Kir-Abb: PNil *kɪʈɛaŋ "cow" (PWNil *dyaŋ, PL. dyok; PENil *-kɪtɛŋ-, PL. *kitiuk; SNil: Kalenjin *tuc "cows"; PSNil *tu:ka "cows (n. pl. 2ndary form)")

[NS *kʰ n. pref. plus stem plus number suff., as per note below; Kalenjin pl.: Nil *k > c /_# is a common shift in environments not yet adequately defined; SNil pl. 2ndary form: probable *tuk (> Kalenjin *tuc) plus *-ka pl. 2ndary suff. with V length because no C length in SNil]

Kir-Abb: Nil: PSNil *té:ta "cow (n. sing. 2ndary form)"

[stem plus NS *-ta 2ndary n. suff.]

Western Astaboran morphological innovation: The Nubian and probably the Taman reflexes can be explained as deriving from *Ʈɛ'y, stem plus Nilo-Saharan *'y noun suffix. Taman and Nubian also can be proposed to share a particular pluralization, *Ʈɛy-i, stem plus NS *-ih plural marker, differently assimilated in modern-day languages, and so accounting for lowered stem tone in Tama and for added vowel length in the Nubian plural (as attested in Kadaru). Kir double morphological innovation: new number marking by pairing *ŋ singular suffix (in apparent shape *-aŋ) with Nilo-

Saharan *kʰ plural suffix (in shape *-uk), producing proto-Kir singular *Ʈeaŋ, plural *Ʈeukʰ. This innovation might go back to proto-Kir-Abbaian, since the Gaam plural can plausibly be derived from *Ʈeukʰ, but the Gaam singular remains to be explained. The simple form of the root, *Ʈɛ, persisted in use alongside the innovated shapes, as is shown by the Surmic plural and Southern Nilotic singular secondary forms. Proto-Nilotic innovation: addition of the *kʰ noun prefix ('movable k'). The Western Nilotic reflexes must be presumed to have once had this prefix in order to account for the voicing of initial *T. To have become voiced, it had to have been in an intervocalic environment in pre-proto-Western Nilotic. For a parallel phonological history in Western Nilotic, see root 1428 (*Wɛʈ' "mouth"); for another example of regular pre-proto-Western Nilotic deletion of *kV- /#__CVC#, see root 1000 (*kweʈ "fly").

763. *ʈɛr OR *ʈʰɛr OR *ʈ'ɛr   "to become sour"

CSud: PCS *trɛ "to become sour"

FOR tirma "fermented grain"

[stem plus NS *m n. suff.]

Astab: Nub: DILING [tir "beer": LOAN (expected *tar)]

Kir-Abb: TEMEIN ʈɛr "beer"

764. *Ʈūp OR *Ʈūb   "wooden bowl"

SONGAY tù "wooden dish, wooden bowl"

[NS *b, *p > SONGAY w /V_# (> Ø when V = [+round])]

Kir-Abb: Surmic: DM: DIDINGA kutuba "wide-mouthed gourd"

[NS *kʰ n. deriv. pref. plus stem]

Kir-Abb: Nil: ENil: Ateker *-tuba "wooden dish, trough"

Rub: IK [itúɓ "trough, wooden bowl": LOAN from Karimojong (Ateker gender pref.; expected *túb)]

765. *Ʈútʰ OR *Ʈʰùʈʰ   "to drag"

SONGAY túti "to push something making it slide on the ground"

[stem plus NS *-i itive]

Kir-Abb: Nil: WNil: NAATH ʈut "to tow, drag"

[Naath regular dissim. of consecutive dentals is possible here]

766. *éʈ OR *éʈʰ OR *éʈ'   "bile, gall"

SONGAY téy "bile"

[stem plus NS *y n. suff. (with regular loss of word-initial V)]

Astab: Nub: DONGOLAWI ɛtt- "bile"

Kir-Abb: Nil: WNil: JYANG keʈ "bile"

[NS *kʰ n. pref. plus stem]

NILO-SAHARAN STEM-INITIAL *t

767. *tà / *ti   "something"/"(some)one"   (indef. pron.)

Koman: UDUK p-iti "his, her, its"

[UDUK p- pref. of sing. poss. pron. plus 2nd stem shape *ti in canonical VCV shape of NS pron. (implying its earlier use as indep. sing. 3rd person pron.]

Koman: UDUK tō "thing"

[1st stem shape plus NS *w n. deriv. suff.]

KUNAMA katana "thing"

[NS *kʰ n. pref. plus stem plus NS *n n. suff.]

Kir-Abb: GAAM tìŋ "a bit, a moment"

[1st stem shape plus NS *n n./adj. suff.]

Kir-Abb: Daju: SILA adi "other"

[NS *a- n./adj. deriv. pref. plus 1st stem]

Kir-Abb: Nil: SNil: DATOGA *di- "thing"

Rub: IK ati "someone"

[NS *a- n. deriv. pref. plus 2nd stem]

768. *tá "which one?"

Koman: UDUK àtá "what?"

[stem *ta in canonical VCV shape of NS pron.]

Astab: Taman: TAMA tə-, ta- in təŋoi "where?" and tagri "when?"

Kir-Abb: C.Jebel *-tə IN *intə "where?" (MOLO ɪndе, KELO intə)

Kir-Abb: Nil: SNil: NANDI ata "how much?"

PRub *taan- "to be how many?"

[stem plus NS *n dur. as denom. or *n n./adj. suff.? Corrects Ehret 1981b, which gives *tana- "how many?"]

Rub: SOO ita "when (conj.)"

[unexplained initial V plus stem *ta]

Rub: IK ńtá "where?"

[IK *N- pref. element of pron. (NS *ŋga topic marker) plus stem *ta]

Rub: IK ńt-één "which?"

[IK formation as in "where" above plus NS *en, *ne dem. (root 255)]

Rub: IK ńtó-òdó "when" (ódo "day")

[IK formation as in "where?" preceding compounded with word for "day"]

769. *tá: "to be (in a place)"

Koman: UDUK tã "to be (someone)"

Sah: KANURI dò "to stand, stop"

[possible *taw, stem plus NS *w punc., to explain low tone]

Astab: NARA dat "to sit"

Astab: Nub: DONGOLAWI da: "to be, exist"

[stem plus NS *tʰ cont.]

Kir-Abb: GAAM tãã- "to be (in a place)"

Kir-Abb: BERTHA dá:š- "to be, exist"

[stem plus NS *s prog.]

Kir-Abb: NYIMANG ʈà(n)- "to become"

[stem (plus NS *n dur.?)]

Kir-Abb: Nil: WNil: OCOLO da "there is/are" (used in expression translated by ENGLISH "have")

770. *ták "to find out"

Koman: UDUK tákʰ, tákʰán "to greet, find out for the first time"

[2nd entry: stem plus NS *n dur.]

KUNAMA tak- "to know"

Sah: KANURI dágávár "to consider"

[stem plus NS *p extend. plus NS *r iter., presumably < earlier *dagavar with regressive V assim.]

Maban: MABA túkú- "to find (L)"

[stem plus NS *-uh ven.?]

Kir-Abb: Surmic: S.Surmic: KWEGU tak- "to know"

Kir-Abb: Nil: SNil: NANDI tɔk-ʊ "to appear"

[*tak, stem with +ATR form of *a, plus NS *-uh ven.]

PRub *tak "to take notice of" (IK ták- "to mean")

Rub: IK takán- "to notice, be visible"

[stem plus NS *n dur.]

771. *tá:m OR *tá:m "to seep, leak, run out"

Koman: Gumuz *dam- "to rain"

CSud: ECS *ta "to defecate"

Sah: KANURI dám "to seep, ooze"

Kir-Abb: proto-Daju *tamuke "blood"

[stem plus NS *kʰ pl. marker]

Kir-Abb: Nil: proto-Luo *nam "lake, river"

[Luo regular nasal assim. as in root 209 (NS *t > Nil *d > Luo *n /#_VN#]

Kir-Abb: Nil: ENil: Ateker [*-nam "lake": LOAN from Luo (expected *-dam)]

772. *tà:r "to make level, flat, straight"

Koman: UDUK tãr "right side up"

Koman: UDUK tãrátãr "level"

[adj. by redup. stem]

KUNAMA tarša "platform"

[stem plus NS *ʈʰ n. suff.; semantics: platform is a raised FLAT surface]

Sah: KANURI dàr "to settle down, calm" (H)

SONGAY dàarù "to spread a mat"

[stem plus NS *-uh ven.]

Kir-Abb: NYIMANG ʈaʈar "straight"

[adj. by partially redup. stem]

773. *tà:ṣ OR *tá:ṣ "to twist"

Koman: UDUK tãšá' "snake"

[stem plus NS *-Vh n. deriv. suff.]

CSud: PCS *tsa OR *ca "basket"

CSud: MM: LUGBARA tsàa "to twist, braid, make (basket)"

KUNAMA dassasa "basket of dum palm"

[stem plus NS *s n. suff. or partially redup.]

FOR taasa "basket of palm leaves"

[stem plus NS *-Vh n. deriv. suff.?]

Sudanic semantic innovation: technical application of this root to the kind of twisting involved in plaiting a basket, as opposed to the general, non-specialized sense apparent in the derivation of the Koman reflex in Uduk. An additional, logically subsequent Sudanic innovation was the deriving of a noun for basket, possibly *ta:sah (reconstructible from the PCS, Kunama, and For nouns), derived from the verb root plus the Nilo-Saharan *-Vh noun deriving suffix. The Kunama and For reflexes indicate that the basket was probably woven from palm fibers.

774. *té:b OR *té:p "to rise up"

CSud: PCS *ti "to be raised" (BALEDHA ti)

KUNAMA tibi- "to arise, ascend, climb"

SONGAY déebéy "to rear (up)"

[stem plus NS *'y ess.-act.]

Astab: Nub: DONGOLAWI [tɛ:b "to stand, stand still, remain, stay": LOAN (expected *dɛ:b)]

Kir-Abb: Nil: SNil: Kalenjin [*tep "to sit, stay": LOAN from Rub (lack of expected long V)]

Rub: SOO teb "to wait"

Rub: IK tébin- "to lean on something"

[stem plus NS *-i itive plus NS *n dur.]

The Eastern Sahelian reflexes all share a semantic innovation, from "stand up" to "stand (still)" (hence, "stay"). But the fact that the Nubian and Nilotic attestations are both loans makes it unclear at what point this innovation arose. The Eastern Sahelian node is nevertheless the most probable point, because the reflex in Songay, co-descending with Eastern Sahelian from the prior Sahelian node, maintains the earlier sense of the root.

775. *téd "to strike (something)" (originally in making a stone tool)

Koman: UDUK tír "to chip millstone; to pound grindstone; to beat drum"

CSud: PCS *te "to strike (off piece)"

KUNAMA tarke- "to pound"

[stem plus NS *kʰ iter.]

Kir-Abb: Nil: WNil: JYANG deer "hammer, anvil"

The Uduk and Jyang meanings directly, and the Central Sudanic meaning indirectly, would fit in with this being originally a verb for a stone tool-making technique. For other old Nilo-Saharan verbs that probably had to do originally with the fashioning of stone or other non-metal tools, see roots 728 and 1430. Root 728 probably referred to shaping by hammering, root 775 here to shaping by striking off flakes, and root 1430 to the grinding/polishing of a stool implement.

776. *té:k   "one"

Koman: UDUK tēkēlátēkēl "only a few, one there and here"

Maban *tek "one" (MABA tek; MIMI deg)

Kir-Abb: BERTHA dé:gó "first"

[stem plus NS *l adj. suff., redup. as iter.]

[stem plus NS *w n./adj. suff. (*-aw > *-o]

777. *tér OR *tēr   "to smell (intr.)"

Koman: UDUK tēr "to smell, of perfume; to give very strong odor"

CSud: PCS *trɛ "to smell"

Kir-Abb: Nil: ENil: BARI ɗɛrɛŋ-ga "to swell (with decay)"

[stem plus NS *n dur. (with velar regressive assim.); semantics: "stink" > "smell rotten," hence "swell with decay"]

778. *té:r OR *tē:r   "to pick up"

Koman: UDUK tēr "to collect, gather (some from each)"

CSud: PCS *tri "to take off, remove, undo"

Kir-Abb: Surmic: S.Surmic: LARIM tel- "to bring"

Kir-Abb: Nil: WNil: NAATH der "to hold on head, without using hand"

Kir-Abb: Nil: WNil: OCOLO [tɛr "to carry on head": LOAN, probably from Koman (/t/ for expected *d); but WNil meaning is applied to borrowed shape]

[NS *r > Surmic *R > Larim (DM) /l/]

779. *té:ş OR *tē:ş   "to bite"

Koman: UDUK tāš ē "to chew cud" (ē "amid")

CSud: PCS *tse "to bite"

Astab: NARA dɛs "to bite"

780. *ti   << first person plural inclusive subordinate pronoun >>

KUNAMA -di << 1st person pl. incl. subj. marker of v. >>

Saharan *t (*ti) << 1st person plural subj. marker of v. >> (ZAGHAWA, BERTI di-; etc.)

SONGAY ír / írìŋ "we"/"we (emphatic)"

[after Cyffer 1983]

[*iri, stem converted to canonical VCV shape; emphatic form: stem plus NS *ŋga pronomial stem as topic marker (see root 486)]

781. *tí:p OR *tí:b OR *tí:ɓ   "to step, tread"

CSud: ECS *ti "to walk"

KUNAMA tibi- "to go barefoot, on tiptoe, etc."

KUNAMA tíbiri- "to make sound of fast movement (running of soldiers, horse, etc.)"

Sah: KANURI dívàl "way, street"

[stem plus NS *r iter.]

[stem plus NS *l n. suff.]

SONGAY díibí "to tread"

782. *ti:l   "strip, strand"

Astab: Taman: TAMA tili: "grass"

Astab: Nub: DONGOLAWI dilt- "hair"

Astab: Nub: Hill Nubian *til- "hair"

Kir-Abb: GAAM tilŋa "chain"

Kir-Abb: Surmic: MAJANG ti:ri "root"

Kir-Abb: PNil [*ti:l "root" (proto-Luo *tɪɛl "root, foot"; SNil: Kalenjin *tɪ:ltɪ:l "root"): LOAN (expected *di:l)]

[stem plus NS *tʰ n. suff.]

[stem plus NS *ŋ n. suff.]
[proposed NS *l > MAJANG r /i_i]

Surma-Nilotic semantic innovation: development of the meaning "root" for this noun. However, the Luo shape, by reason of its initial /t/ for expected /d/, must be reckoned a borrowing. If proto-Luo was not involved in significant early borrowing from either Southern Nilotic or Surmic languages—and that possibility is not indicated in the available evidence—then the era of borrowing of the word must most probably be pushed back at least to the proto-Nilotic stage, as proposed here, and might go back to the common Surma-Nilotic period, to which year the shared semantic innovation can be traced. What the source language of such a proposed early borrowing might be is unclear, however.

783. *tíŋk   "to support, prop up"

Koman: UDUK tíŋkílíŋ "center pole"

KUNAMA -tig- "to support, straighten, sustain, help"

Sah: KANURI də̀ŋgə̀s "to prop, wedge up, support"

[stem plus NS *l and *ŋ n. suff.]

[stem plus NS *s prog.]

784. *tóŋkʰ   "to join (tr.)"

Koman: UDUK tókʰ k'úpʰ "to add" (k'úpʰ "direction toward")

KUNAMA takana- "to stick, glue, paste"

SONGAY dóŋkó "pitch"

Kir-Abb: Nil: WNil: OCOLO dök "gum, tar"

Kir-Abb: Nil: WNil: OCOLO dwak "fastened to a place"

Kir-Abb: Nil: WNil: OCOLO dwäk "to throw mud on, solder, fuse"

Kir-Abb: Nil: WNil: JYANG lɔ dokdok "sticky" (lɔ "have")

[stem plus NS *n dur.]
[stem plus NS *-Vh n. suff.]

[adj. by redup. stem]

Northern Sudanic semantic innovation: narrowing of the application of the verb to a particular kind of joining, by the use of sticky material. Sahelian innovation: derivation of a noun, probably *toŋkʰoh (stem plus NS *-Vh noun deriving suffix), seen in Songay and Ocolo, for "pitch."

785. *tó:k   "to dig, stick into ground"

KUNAMA tokai- "to dig the ground with a spear"

Sah: KANURI dòwóp "to sow, plant"

SONGAY dóogò "to weed"

PRub *tɔkɔb "to cultivate" (IK tókɔb, NYANG'I tɔbɔk)

[stem plus NS *'y ess.-act.]
[stem plus NS *p extend.]

[structure as in Kanuri; Nyang'i: metathesis]

Saharo-Sahelian innovation: A specialization of the meaning to digging involved in cultivation is present in the Saharan, Songay, and Rub verbs. Differences in the tonal consequences indicate that the addition of the *p extendative extension took place separately in the Saharan and Rub subgroups.

786. *tɔŋkʰ "top, upper part"

Koman: UDUK šūrr tūkʰūɓ "to jump from a height" [stem plus UDUK ɓ v. suff. of uncertain
(šūrr "to go down": see root 1193 below)   meaning]

KUNAMA tonkoša "peak of mountain" [stem plus NS *tʰ n. suff.]

Saharan *Tak- "head" (DAZA, TEDA daho;
ZAGHAWA taha "head")

Astab: Nub: DONGOLAWI [dogo "top, summit, up-
per part": LOAN (expected *dag-)]

Kir-Abb: proto-Daju *toce "face" [< *tokce, stem plus Daju *-ce n. sing.]

Kir-Abb: PNil *dɔːkɔːy "forehead" or "face" (ENil: [stem plus NS *y n. suff.]
MAASAI ɛn-dʊkúyà "head"; SNil: Kalenjin
*tɔːkɔːy "face")

Saharo-Sahelian semantic innovation: narrowing of the meaning of the root to the top part of the
body, namely, the head or some portion of the head. Kir semantic innovation: specialization of
the root to apply to "face" or "forehead."

787. *túːl "to assemble, accumulate, pile up"

Koman: UDUK tūl "to gather, assemble, pile"

KUNAMA dula- "to heap up"

Sah: KANURI dùlò "to tie up (animals) in a row" [stem plus NS *w punc.]

Astab: Nub: DONGOLAWI duːl "great, large, big"

Kir-Abb: Nil: WNil: OCOLO dwɔl "temple" [imagery here invokes the mounds built
as religious monuments in the re-
gion]

Kir-Abb: Nil: ENil: TESO -dul "deep"

Eastern Sahelian innovation: The derivation from this verb root (possibly by tone shift?) of an ad-
jective, *duːl, probably originally meaning "thick (in demension)," is seen in the Dongolawi and
Teso reflexes.

788. *túpʰ "to stick (into), pierce"

Koman: UDUK tūpʰ "to pierce, bore; to dive into
water (of birds after fish)"

CSud: PCS *tu "to pierce"

KUNAMA tufe- "to plant (pole)"

Sah: KANURI dɘbbó "little borer (insect)" [< *dɘbCo, stem plus uncertain NS n.
deriv. suff., possibly NSud *t]

Kir-Abb: Nil: ENil: TESO -dup "to fix handle of
tool"

Kir-Abb: Nil: ENil: BARI [tup "to cleave," tupet, [n.: stem plus ENil *-et deverb. suff.]
PL. tupesi "fragment": LOAN (expected *dup-)]

Rub: IK tʊf- "to sew" [semantics: to pierce cloth with needle"]

789. *túr "to strike with a tool"

KUNAMA duru- "to hit with a long stick or pole"

SONGAY dúrú "piler"

Kir-Abb: Surmic: DM [*tur- "to forge (iron)": LOAN
(expected *tul-)]

Kir-Abb: Nil: WNil: ACHOLI [tuor "hammer; iron
bar": LOAN from language in NS *t > t (Surmic
or Koman)]

Kir-Abb: Nil: SNil: Kalenjin *tur "stampfen,
stossen"

Rub: SOO túr "stossen"

790. *túr "to increase (in size or amount)"

Koman: UDUK túr "length"

Koman: UDUK túrátūr "long, tall" [adj. by redup. stem]

CSud: PCS *tru "much, many"

Sah: KANURI dɔ́rzɔ́k "ideophone of abundance of, [stem plus NS *t' iter. intens. (*t' >
e.g., mangoes growing in clusters"   Kanuri /s/ (-> [z] /V_V) plus NS *kʰ
iter. or *k intens.]

Astab: Nub: DONGOLAWI duru "old, aged (person)" [stem plus NS *-Vh n./adj. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO [tur "to increase":
LOAN, probably from Koman (expected *dur)]

Kir-Abb: Nil: ENil: BARI ɗur-jö "to grow up, grow
big"

Eastern Sahelian semantic innovation: shift of verb from "to grow in size or amount" to "to grow
up, mature." Borrowed Ocolo form, as might be expected, maintains older more general sense.

791. *twí "to look at"

Koman: UDUK tú "to look into (place)"

KUNAMA -ti- "to see"

Kir-Abb: Nil: ENil: MAASAI -duaá "to be seen" [stem plus Maa *-a neut.-pass.]

Proposed Northern Sudanic semantic innovation: "look at" > "see."

PROTO-NILO-SAHARAN STEM-INITIAL *tʰ

792. *tʰ- << demonstrative stem >> (*tʰa "there nearby"; *tʰi "here (direction)")

Koman: UDUK tʰāān "that" [stem plus probably NS *na dem. root
(256); see root 907 for parallel dem.
construction in Uduk]

CSud: WCSud: KARA tɪ́ɪ́ "here (to)"

CSud: WCSud: YULU ta "that"; ti "this"

CSud: WCSud: KRESH ɛte "she, he, it" [stem plus NS *ɛh 3rd person sing. root
(1588) added to make canonical
VCV pron. shape]

KUNAMA atta "here" [NS *a- n./adj. deriv. pref. plus stem]

Saharan *t << 3rd person marker >>

Sah: KANURI átɔ̀ "this" [Cyffer 1983]

Sah: KANURI -tɔ́ "the" [NS *a- n./adj. deriv. pref. plus stem]

Sah: KANURI tútù, PL. túnyì "that" [relation of this form to Zaghawa "that"
may be regular, but if so correspon-
dences still are to be worked out]

Sah: KANURI ti "she, he, it" (in some dialects)

Sah: Tubu *te "this" [possibly *ta-i, stem plus possible *i
nearness marker; see note below for
discussion]

Sah: TUBU tere "that" [Tubu "this" plus possibly NS *r dem.
root (1244)]

Sah: ZAGHAWA to "that" [possibly < *taw, stem plus NS *w n./
adj. suff.]

Sah: ZAGHAWA oto "she, he, it" [Zaghawa "that" > pron. by conversion
to NS *VCV pron. format]

FOR ìt, PL. kìt "this (over there)"

Maban: Maba-Masalit *tay "he, she, it" (MABA tè, MASALIT tíi) | [*tʰay, stem plus NS *y n. deriv. suff.]

Maban: Maba-Masalit *t- << 3rd person subject marker of v. >>

Astab: NARA te, PL. tegu "that" | [probably *tay, stem plus NS *y n./adj. suff.]

Astab: NARA te "his, her, its" | [*tʰay, stem as in Maban "he, she, it"]

Astab: NARA teb "she, he, it"; teba "they" | [*tʰay, stem as in Maban "he, she, it" plus NS *ba dem. pron. (root 32); pl.: adds NS *a pron. pl. affix]

Astab: Taman: TAMA eːta "there" | [undetermined element *e- plus stem]

Astab: Taman: TAMA ita "here" | [possible *i nearness marker plus stem; see note below for discussion]

Astab: PNub *ter "he, she, it" | [*tʰay, stem as in Maban plus *r base of Nubian pronouns, probably < *r dem. root (1244)]

Astab: PNub *tir "they" | [Astab. sing. 3rd person stem (*te < *tʰay) plus NS *-ih pl. marker plus base *r as in other Nubian pron.]

Astab: Nub: NOBIIN tar "that" | [stem plus NS *r dem. (root 1244), as in Tubu of Saharan?]

Kir-Abb: GAAM tìì "there" | [2nd stem plus NS *-i itive?]

Kir-Abb: GAAM tēē "here" | [*ta-i, stem plus possible NS *-i nearness marker; see note below]

Kir-Abb: MOLO tee "here" | [format as in Gaam "here"]

Kir-Abb: KELO ta "there"

Kir-Abb: KELO tii "there" | [format as in Gaam "there"]

Kir-Abb: BERTHA áθí "that (over there)" | [NS *a- n./adj. deriv. pref. plus stem in shape seen also in Gaam "there"]

Kir-Abb: BERTHA θaŋ "at a place" | [stem plus NS *ŋ n./adj. suff.]

Rub: IK ta "that is"

Rub: IK tɛ << emphasis particle >>

If the various instances of *to/*tɔ and *te/*tɛ reflect underlying compound shapes *taw and *tay/ *tai respectively, the root shapes here boil down to two: (1) *tʰa, associated with items often glossed as "that" (Uduk, Yulu, Zaghawa and possibly Kanuri, and Nobiin; and (2) *tʰi, associated with meanings such as "here" and "this" in Central Sudanic (Yulu, Kara) and For. Only in one geographically restricted subgroup of Kir-Abbaian, Jebel (Gaam, Molo, Kelo, and Bertha), does this latter shape vexingly line up with "that" or "there." The vowel *i also goes with near connotation in Tama (ita "here," eːta "there"). What this evidence suggests—along with that of Tubu and Gaam of the Jebel subgroup, if Tubu *te "this" and GAAM tēē "here" come from *tai—is that *tʰa may originally have been neutral as to proximity, whereas *i was the actual bearer of near implication and, when added to *ta or substituted for stem *a, transmitted that connotation to the resulting word. The opposing form *tʰa may thus often have taken on a more distant reference by default. Sahelian innovation: derivation of a third person singular pronoun *tʰay by addition of the Nilo-Saharan *y noun suffix to *tʰa. The Kresh third person singular pronoun must be considered a separate innovation from that of Astaboran, differing in its construction although having a similar surface outcome.

793. *tʰáːɓ "to fold together"

Koman: UDUK tʰáɓ "to mold ground grain into ball"

Sah: KANURI tàvàs "to plait three strands into one" | [stem plus NS *s prog.]

SONGAY táabú "to fold" | [stem plus NS *-uh ven.]

794. *tʰàːkʼ "to intend, have in mind to do"

KUNAMA takarᵬu- "to promise something" | [stem plus NS *r n. suff. plus NS *p extend. as deverb., or else stem plus NS *r iter. plus NS *p extend.]

Sah: KANURI tàk "to remember, recall"
Kir-Abb: Nil: WNil: JYANG tak "to remember"
Rub: IK tak'ám- "to find all of a sudden" | [stem plus NS *m iter. conc., with probable original implication of remembering suddenly where a thing is and hence locating it]

Saharo-Sahelian semantic innovation: shift of meaning to "to remember" (i.e., to come to mind). This innovation can be seen to have replaced PNS *ka'y "to remember" (972 below), which is preserved in Koman and Kunama. Despite its resemblance in form and semantics to *táːk "to find out" (root 770), this root is distinct from it in both its consonants and its tone.

795. *tʰàːm OR *tʰáːm "to stamp with the feet"

SONGAY tàamà "to stamp with the feet"
Kir-Abb: WNil: OCOLO täm "to stamp with the feet"

796. *tʰàn OR *tʰān "to put low, set down"

Koman: UDUK tʰān "to cut down grain when ripe, to break or bend over, to trample down"

CSud: WCSud *ta "to lay"

Sah: KANURI tánáná "ideophone of late afternoon pre-dusk period" | [partially redup. stem as dur.; semantics: time when sun is SETTING]

Other possible reconstructions: *tʰàːn or *tʰáːn.

797. *tʰăpʼ "dust, dirt, rubbish"

Koman: UDUK tʰăpūrátʰāpūr "dusty, of ground" | [adj. by redup. of stem plus NS *r n./ adj. suff.]

KUNAMA tafa "chaff"

Sah: KANURI kàdávù "dirt" | [NS *kʰ n. pref. plus stem plus NS *-uh n. suff.]

Kir-Abb: Daju: SILA tabah "field" | [*tabak-, stem plus NS *k singul.; semantics: "dust" > "earth" > "field"]

Kir-Abb: Nil: WNil: NAATH tap "unfertile ground"

798. *tʰăʼw "belly"

Koman: KWAMA tɔːtɔ "liver"
CSud: PCS *tɔ "stomach"
CSud: PCE *ɔtɔ "navel" | [stem redup. or plus NS *tʰ n. suff.]

FOR diito, PL. kiitoŋa "belly" (B) | [CSud *V- pref. plus stem]
| [FOR number markers in *di- sing., *ki- pl. allomorphs]

SONGAY tù "placenta"
Maban: MABA tabuk, PL. tabusi "belly"
Astab: NARA tawa "belly"
Astab: PNub *tuː "belly" (NOBIIN tùu)
Kir-Abb: C.Jebel: KELO [teete "liver"; either chance resemblance or LOAN (expected *tɔ or similar)]
Kir-Abb: Nil: PENil *-tau "heart" (MAASAI ɔl-táú)
Kir-Abb: Nil: SNil: NANDI ketoe "abdomen" | [NS *kʰ n. pref. plus stem plus NS *-eh n. suff.]

799. *tʰé OR *tʰèh "to make, fashion, build"

CSud: PCS *te OR *t'e "to build"
KUNAMA ta- "to build, make"
SONGAY té "to make"
Kir-Abb: Nil: ENil: Ateker *-ti "to do"   [presumed *tey, stem plus NS *'y ess.-act.]

Kir-Abb: Nil: ENil: BARI tɛtɛn-dya "to arrange, repair, prepare, shape"   [stem plus NS *n dur., partially redup.]
Rub: Ik [ɪtíy- "to do": LOAN from Ateker]

800. *tʰé: "to satisfy"

Koman: UDUK tʰé "to satisfy"
Sah: KANURI tí "to satisfy"
Kir-Abb: NYIMANG ʈɛ "enough"
Rub: IK itém- "to be enough, suit; do continuously"   [*i- v. class pref. plus stem plus NS *m iter. conc. > Ik intr. as in variety of other instances in this dictionary]

801. *tʰéɟ "to let leak, let run out or down"

Koman: UDUK tʰéɗ "to catch water (in something)"
CSud: PCS *trɛ "to be wet, slick, slippery"
KUNAMA [tella- "to pour, spill, drip, trickle": LOAN (expected *tal-)]
Sah: KANURI tálák "to let fall in drops; drop (n.)"   [stem plus NS *kʰ iter.]
Astab: Nub: DONGOLAWI tillɛ "to sweat"   [stem plus NS *'y ess.-act. (*-a'y > Nubian *e)]

802. *tʰéŋ / *tʰíŋ "to stagger" / "to totter"

CSud: PCS *ti OR *t'i "to totter"
KUNAMA taŋa-, taŋka- "to reel, stagger, sway, tremble, get excited"   [2nd entry: stem plus NS *kʰ iter.]
Sah: KANURI tàŋàràs "to limp"   [stem plus NS *r iter. plus NS *s prog.]

FOR tiŋ "to tremble"
SONGAY tàtàŋgí "to stagger, totter"   [stem plus NS *k intens., partially redup.]

Kir-Abb: Nil: Pil * tɛŋ "to shake" (WNil: NAATH tɛŋ "to shake"; ENil: BARI tɛŋ-ga "to churn")

Sahelian semantic innovation: A shift of meaning in the unmodified forms of this root from "to stagger" and "to totter" to "to shake," is seen in the For and Nilotic reflexes. For other examples of this kind of stem-vowel alternation and its semantic effect, see note to root 126.

803. *tʰéŋk "silence"

Koman: UDUK tʰóŋkōr "silence"   [stem plus NS *r or *d adj. suff., with regressive V assim. (< *tʰeŋkor)]

Sah: KANURI kádák "silent; silently"   [NS *kʰ n./adj. pref. plus stem]
Kir-Abb: GAAM tɛŋ "complete silence"

804. *tʰḗpʰ "to flatten"

KUNAMA tafoša "broad, flat"   [stem plus NS *ʈʰ n./adj. suff.]
Kir-Abb: Nil: WNil: OCOLO tɛp "to bob, cut or break off end"
Kir-Abb: Nil: WNil: OCOLO tɛpo "blunt"

Kir-Abb: Nil: SNil: Kalenjin *tɛpɛːs "wide, broad"   [stem plus no longer productive SNil *-V:s suff.]

805. *tʰéːr / *tʰíːr "to pour off"/"to spill down"

Koman: UDUK *tʰēr "to pour off liquid from top of"
KUNAMA -tir- "to pour"
Sah: KANURI títír "to urinate standing up"   [stem partially redup. (as freq.?)]
Astab: PNub *teːr "to sow"   [semantics: to scatter seed about]
Kir-Abb: C.Jebel: KELO [teeli "river": LOAN from Bertha (expected *teer-)]   [see Bertha entry]
Kir-Abb: BERTHA θéːɭi "sea"   [stem plus NS *-ih or *-i'y n. suff.]
Rub: IK tír-on cuɛ "rain falling in big drops" (cuɛ "water")   [stem plus IK -on inf. suff. (verbal n.)]

For other examples of this kind of stem-vowel alternation and its semantic effect, see root 126.

806. *tʰéːr "to tie"

CSud: PCS *tri "to bind, fasten"
KUNAMA tir- "to sew"
SONGAY tètèrè "to plait"   [partially redup. stem as iter.]
Kir-Abb: Nil: WNil: OCOLO tyɛr gwŏk "dog rope (for hunting)" (gwɔk "dog")

807. *tʰɛ́ŋ "to rise up, go out"

KUNAMA teŋo- "to rise, climb, go up"
KUNAMA teŋka- "to drive away, oust"   [stem plus NS *k caus.]
Sah: KANURI tánd "to build"   [stem plus NS *ʈ caus., i.e., to erect]
SONGAY tàŋ "to leave, forsake"
Maban: MABA ndíŋ- "to drive out" (Lukas)   [Maba n- caus. plus stem]
Kir-Abb: Surmic: S.Surmic: LARIM téŋ- "to stand"
Kir-Abb: Nil: WNil: OCOLO tiŋo "to raise, lift"

808. *tʰil OR *tʰiɬ "louse"

CSud: MANGBETU ne-ti "louse"   [PSC *tr, *t > Mangbetu /t/]
KUNAMA tila "louse"
Maban: MABA tiltili "flea"   [redup. stem, as dimin.?]
Astab: Taman: SUNGOR til "flea"

Other possible reconstructions: *tʰiːl OR *tʰiːɬ. The Sungor and Maba meaning cannot be taken as a Sahelian semantic innovation since the languages involved are spoken in neighboring areas and the meaning shift is thus likely to be an areal rather than genetic feature.

809. *tʰím "to cover"

CSud: PCS *ti OR *t'i "to cover up"
Sah: KANURI tám "to cover by turning over upside down"
Maban: MARA tíms- "to bury"   [stem plus NS *θ intens.]
Rub: Ik tímɛl "roof pole; stick of a tree trap"   [stme plus NS *ɬ n. suff.; original sense, part of the covering (roof) of house]

810. *tʰíŋ "to be heavy, stout"

SONGAY tíŋ "to be heavy"
Kir-Abb: DINIK [títìŋ "heavy": LOAN? (expected *tiʈiŋ?)]   [partially redup. stem (as in Teso reflex)]

Kir-Abb: Nil: WNil: OCOLO tɛŋ "to become hard,
   strong"

Kir-Abb: Nil: ENil: TESO a-titiŋ "courage"   [partially redup. stem]

811. *tʰipʰ   "clump of hair"

Sah: KANURI tə́pšì "pubic hair"   [*tipki, stem plus NS *kʰ n. pl. plus
                                          probably NS *-ih pl.]

Maban: MABA tifik, PL. tifi "hair"

Astab: NARA tefene "feather, wing" (R)   [stem plus NS *n n. suff.]

Kir-Abb: GAAM tifa "forelock"   [stem plus NS *-ah n. suff.]

Kir-Abb: C.Jebel: MOLO tibo "vulva"   [possible loan (expected *tif-?)]

812. *tʰír   "to persist, continue (doing) (intr.)"

Koman: UDUK *tʰírrìš to force by continual nag-   [stem (probably partially redup.) plus
   ging"   NS *š caus. (*tʰiririš)]

Sah: KANURI tərətərə "to look lost, hover"   [stem plus uncertain ext., redup.]

Kir-Abb: GAAM tír- "to die"

Kir-Abb: BERTHA θírš- "to sleep"   [stem plus NS *s prog.]

Kir-Abb: Nil: ENil: TESO tir tir "always"   [redup. stem]

Jebel semantic innovation: A sequence of pre-Jebel meaning shifts, first from "continue" to "re-main, stay" and then to "stay still," plausibly and simply link up the Gaam and Bertha meanings, with Gaam making a further shift, via euphemism, from "be still" to "die." Central Jebel *tʊgʊr- "to die" (AKA tʊgʊr-, MOLO tʊr-, KELO tʊʊr-) reflects a different underlying stem *tuk- and does not belong here.

813. *tʰíːr OR *tʰíːr   "to touch, come into contact"

KUNAMA tiri- "to come all the way up to"

FOR tiir- "to meet, join"

Astab: Nub: DONGOLAWI tirt- "owner, master"   [stem plus NSud *ṭ n. suff.; reflects ear-
                                          lier ESah sense "to take hold of" >
                                          "to possess"]

Kir-Abb: Nil: WNil: NAATH tiɛr "to remember"   [semantics: "to get" or "to grasp" > "to
                                          remember" is a common shift in the
                                          world; cf. English "forget," in deri-
                                          vation literally "get without," for the
                                          opposite linkage]

Kir-Abb: Nil: WNil: OCOLO tyɛr "to draw, attract"   [semantics: "to take hold of" > "to grasp
                                          and take toward oneself" > "draw"]

Kir-Abb: Nil: ENil: TESO -tiror "to touch"   [stem plus Teso itive]

Rub: IK tír- "to hold"

Eastern Sahelian semantic innovation: An underlying two-part meaning shift can be discerned in all the non-extended Eastern Sahelian verb reflexes and in the Dongolawi noun derived from the simple verb stem: "to touch" > "to touch with the hand" > "to take hold of." Only the extended shape in Teso preserves the earlier sense (or rederives it by addition of the itive?).

814. *tʰòd   "finger, toe"

Sah: DAZA turko "nail, claw"   [stem plus NS *k singul.]

FOR tori, PL. toriŋ "finger, toe"

Maban *tor "five" (MABA tur, MASALIT toro,
   RUNGA tor)

Kir-Abb: Surmic [*tur "five": LOAN (expected *tor
   OR *cor), from early pre-Rub]

PRub *tud "five" (IK tud)

Trans-Sahel semantic innovation: shift from logically primary meaning "finger, toe," seen in For and less directly attested in Daza of Saharan, to meaning "five" in the other attestations. This example supports the placement of For in its own primary branch of Sahelian, coordinate with a Trans-Sahel branch composed of the rest of that grouping.

815. *tʰóːd   "to show, explain"

Koman: UDUK tʰór "to show"

Koman: UDUK tʰór gwò "to say, speak, talk" (gwó
   "word, speech")

Koman: UDUK tʰór t'wā' "to converse" (t'wā'
   "mouth")

Kir-Abb: GAAM túr- "to see, know"

Kir-Abb: C.Jebel: MOLO tuuran- "to say"   [semantics: "show" > "watch, see"]

Kir-Abb: BERTHA [θóːr- "to talk, tell": LOAN   [stem plus NS *n dur.]
   (expected *θóːd-), probably from Koman]

Kir-Abb: Nil: WNil: OCOLO tur "to nurse ill person"   [semantics: "watch" > "watch over"]

Kir-Abb: Nil: ENil: TESO [-tɔdɪar "to demonstrate,"   [1st entry: stem plus Ateker itive; 2nd
   -tɔdɪakɪn "to indicate, show": LOAN from Rub   entry: stem plus Ateker benef.]
   (NS *d > Nil *r /V_)]

Rub: IK tód- "to speak, explain, say"

Kir-Abbaian innovation: A high vowel variant of this root, *tuːd, meaning "to watch," can be argued to underlie the non-extended Gaam and Ocolo reflexes (see 816 for more on this alternance).

816. *tʰód / *tʰúd   "to plait (hair)" / "to tie up, bind"

Koman: UDUK tʰód "to plait hair"

KUNAMA turbo- "to fetter, hobble"

SONGAY túrú "to plait hair"   [2nd stem plus NS *p extend.]

Kir-Abb: PNil *tud "to tie" (WNil: NAATH tuṭ "to   [1st stem plus NS *-uh ven.]
   join together (as grass skirt); OCOLO tut "to tie
   knot"; ENil: TESO -tud "to knot"; BARI tud-dya
   "to put an edge to a basket")]

This root pair is another example of root alternants with high and mid vowels, where the high-vowel variant connotes a more intensive sense; for more on this, see root 126 and also Chapter 5.

817. *tʰòd OR *tʰōd   "to wear out, become weary"

Koman: UDUK tʰódō' "not feeling up to par"   [stem plus NS *-Vh n./adj. deriv. suff.,
                                          added since NS *d > d /_# in Uduk]

CSud: PCS *to "to wear down, wear out (intr.)"

Astab: Nub: DILING tore, PL. tɔraɲ "old"   [stem plus NS *y n./adj. forming suff.
                                          (realized as -e sing.)]

Kir-Abb: Nil: WNil: OCOLO tot "to be very tired"   [regular Ocolo progressive assim. of
   (of limb when it goes to sleep)   dental to alveolar]

This root is reconstructed with *d rather than *d, because proto-Nilo-Saharan *tod would have yielded Central Sudanic *tro, *d having become apparently *r non-initially in pre-proto-Central Sudanic before the rule deleting remaining final C from that language]

818. *tʰóːk'   "to pound lightly"

KUNAMA tukku- "to knock"

Sah: KANURI tàgás "to pound (yams) lightly in   [geminate C-# as freq.]
   mortar"   [stem plus NS *s prog.]

Astab: PNub *toːg "to strike, beat" (NOBIIN tóog-)

Kir-Abb: GAAM tʊ̀ʊ̀r "mallet"

                                          [< *togur, stem plus NS *r n. suff.,
                                          with regular Gaam *g deletion and V
                                          assim.]

Kir-Abb: Nil: WNil: OCOLO twak "to pat with
   paddle"

Kir-Abb: Nil: WNil: OCOLO tɔk "to pound, crack,   [underlying lost V ext. accounts for V
   break by pounding"   difference in two Ocolo words]

Kir-Abb: Nil: ENil: BARI tog-gu "to hew, chop,
   knock gently, peck (of hen), bite (of snake)"

Kir-Abb: Nil: ENil: BARI totog-gu "to strike lightly,   [partially redup. stem as freq.]
   pat (with fingers)"

Kir-Abb: Nil: ENil: BARI toket "ax"   [stem plus ENil deverb. suff. *-et]

Rub: PRub *tok'- "to beat" (SOO toʤ "to pound"; [PRub *k' > SOO /ʤ/]
   IK tok'- "to beat")

819. *tʰól "marrow"

Koman: UDUK tʰúlá' "brain"   [stem plus NS *-ah n. deriv. suff.; brain
                            and marrow are a common African
                            semantic linkage]

Kir-Abb: GAAM kɔdɔlá "core (interior)"   [NS *kʰ n. pref. plus stem plus NS *-ah
                            n. deriv. suff.]

Kir-Abb: Nil: ENil: MAASAI en-tólìt, PL. ɪn-tólò
   "marrow"

820. *tʰóːʈ OR *tʰóːʈʰ "to rub with the fingers"

SONGAY túusú "to anoint, coat, wipe"   [stem plus *-uh ven.]

Kir-Abb: Nil: WNil: OCOLO tɔc "to dab on with
   fingers, as oil"

Rub: IK totswe- "to press"   [probable *tots-we-, stem plus NS *w
                          punc.]

821. *tʰóːʈ' "to disturb, disarrange"

Koman: UDUK *tʰóc' "to bother, trouble" (bwà
   "in")

Koman: UDUK *tʰóc' k'ós "to trouble, mess up
   plans, interrupt" (k'ós "in front")

CSud: MM: LUGBARA ōtsū "to shake, jog" (< PSC
   *tsu OR *cu)

KUNAMA duša- "to bother, annoy"   [pre-Kunama aspiration assim., *tʰóʈ'- >
                          *tʰóʈʰ- would explain this outcome]

Sah: KANURI tùská "to mix; to throw into disorder, [stem plus NS *k intens. plus *-a dis-
   disarrange, confuse"   punc.]

822. *tʰóːtʰóːl "to blister; blister"

Koman: UDUK tʰótʰól "blister"

Sah: KANURI tótól "to blister" (tótóltɔ "blister")   [n.: stem plus NS *tʰ n. suff.]

Kir-Abb: Nil: WNil: NAATH tual "blister"

Kir-Abb: Nil: ENil: BARI tɔtɔd-dya "to swell with [regular Bari assim. /l/ > [d] /_-dya]
   pus"

823. *tʰúː OR *tʰūː "to stick into"

Sah: KANURI tú "to ram in"

Sah: KANURI tùt "to stop up, stuff"   [stem plus *tʰ cont.]

FOR tus- "to penetrate"   [stem plus *s prog.]

Maban: MABA tutak "dagger"   [stem plus *tʰ cont. plus *-ah n. deriv.
                        suff.; -k is Maba sing. suff.]

Astab: Taman:TAMA tut- "to pierce"   [stem plus *tʰ cont.]

Kir-Abb: C.Jebel: KELO tùì "to cut"   [stem plus NS *-i itive]

Kir-Abb: NYIMANG [tù- "to bury, sow": LOAN
   (expected *ʈu-); túɗà "seed" (expected *ʈuɗa)]

Kir-Abb: WNil: OCOLO twiy "to perforate"   [stem plus NS *'y ess.-act.]

Kir-Abb: ENil: BARI tu "to pierce"

Kir-Abb: ENil: TESO a-tuta "dam"   [stem plus NS *tʰ cont. plus NS *-ah n.
                            deriv. suff.]

Rub: IK túzuɗ- "to close holes of anthills"   [stem plus NS *'y ess.-act. (PNS *'y >
                            PRub *'j > Ik /z/) plus fossil pre-
                            Rub ext. in *ɗ of uncertain function]

An old coexisting extended shape *tʰuːtʰ, stem plus *tʰ continuative extension, meaning "to stuff,"
can be reconstructed from the second Kanuri and the Teso reflexes. The Tama formation may be a
separate derivation, because its meaning is a different intensification of the reconstructed sense.

824. *tʰūh "to strike against, collide with"

Koman: Uduk tʰū'ūlù mò "to trample on" (mò   [stem plus NS *l iter. plus NS *-uh
   << finished action >>)   ven.]

KUNAMA tu- "to stumble (over), bump (into)"

Sah: KANURI tús "to pound grain lightly in mortar" [stem plus NS *s prog.]

Kir-Abb: Nil: ENil: BARI tun-dyö "to pound"   [stem plus NS *n dur.]

Rub: IK itútú- "to beat out (dust from hide)"   [redup. stem as iter. or intens.]

Saharo-Sahelian semantic innovation: shift of focus of the action from colliding with something to
deliberately striking it with an implement.

825. *tʰúl OR *tʰūl "to break open (intr.)"

Sah: KANURI tál "to burst, pop (pimple, boil)"

Maban: MABA -tuloŋ- "to open"   [stem plus NS *ŋ punc.]

Kir-Abb: Nil: WNil: NAATH tul "to break (of wood)"

Kir-Abb: Nil: ENil: BARI tu-'yö, tulöd-du "to pierce [2nd entry: stem plus NS *tʰ cont.]
   through"

Kir-Abb: Nil: ENil: BARI tulet, PL. tulesi "small   [stem plus ENil *-et deverb. suff.]
   hole"

826. *tʰùŋkʰ "to turn"

Koman: Uduk tʰūk' "to turn around to different way"

KUNAMA tunka- "to form a round thing"   [stem plus NS *-a dispunc.?]

Sah: KANURI tɔk "to bend (head for shame)"

Astab: Nub: DONGOLAWI tuŋgil "bow (n.)"   [stem plus NS *l or *ʈ n. suff.]

Kir-Abb: NYALA tuk- "to stoop"

Kir-Abb: Nil: WNil: OCOLO [twɔk "to avoid the [this item is a probable Koman loanword
   issue": probable loan from Koman]   because it shows figurative meaning
                           seen otherwise only in Uduk]

Rub: IK tukuɗ-, itúkúɗ- "to bend (tr.)"   [stem plus fossil Rub ext. in *ɗ of un-
                            certain meaning]

Saharo-Sahelian semantic innovation: shift of meaning from "to turn" to "to bend" is present in the
Saharan, Astaboran, and Kir reflexes, except possibly that of Ocolo, which is highly suspect as a
Koman loanword or a word influenced in meaning by a Koman reflex of this root.

827. *tʰūp "to be thick, dense"

Koman: UDUK tʰupʰtʰupʰ "thick, bushy tailed" [adj. by redup. stem]

Sah: Kanuri távər "thick"   [stem plus *r modif. suff.]

Kir-Abb: Surmic: DM: DIDINGA cúbì "thick"   [stem plus NS *'y n./adj. deriv. suff.?]

828. *tʰūr   "to troop off, go away in a group"

CSud: BALEDHA d'ru "aller en troupe"   [BALEDHA d'r < PCS *tr]

KUNAMA turke- "to troop"   [stem plus *kʰ iter.]

Astab: PNub *tur "to drive away" (NOBIIN tùr-)

Kir-Abb: Nil: WNil: NAATH tur "to scare up lots of animals"

Kir-Abb.: Nil: ENil: BARI tur-jö "to drive (away), put to flight"

Eastern Sahelian semantic innovation: shift from intransitive to transitive meaning ("to drive many") without overt derivational marking.

829. *tʰwàk'   "first; the first (one)"

Koman: Uduk tʰwā'ā' "first"   [stem plus NS *-Vh n./adj. deriv. suff.]

CSud: Bongo-Bagirmi *kɔtɔ "one" (BELI kɔtɔ,   [NS *kʰ n./adj. pref. plus CSud *V-
BONGO kotu)   pref. plus stem]

FOR tòk "one"

Astab: NARA toko "one"

Kir-Abb: Nil: WNil: JYANG tok "one"

Probable Sahelian semantic innovation: use of this root as the regular cardinal numeral "one," replacing *ɗeh (root 185). Another PNS root for "one," *teːk (776), also has a reflex in Uduk, suggesting a proto-Nilo-Saharan situation not unlike that sometimes encountered in modern-day African languages, where one root for "one" is used in counting and the other descriptively. The particular outcomes of each suggest that *teːk may have been the original counting form, while *ɗeh may have been the adjectival equivalent. The root reconstructed here is thus given a third meaning suggested by its Uduk outcome. Its Central Sudanic reflex, limited to a single subbranch of that group and showing derivational prefixation, must have had some other meaning than "one" in proto-Central Sudanic, with "first one" again being a plausible source meaning.

830. *tʰwàtʰ   "to pull loose, pull off"

Koman: UDUK tʰwācʰtʰwācʰ "adverb of falling out"   [adj. by redup. stem]

KUNAMA toši-, tuši- "to pull, pull down"

Astab: Nub: DILING twaj "to disarm, defoliate"

Kir-Abb: Nil: WNil: NAATH twac "skin of animal"   [semantics: "to pull off" > "remove (the skin)" > n. "removed skin"]

Rub: IK tɔtsuɗ- "to pluck"   [stem plus Rub fossil ext. *ɗ of uncertain meaning; see also 823 above for this same ext.]

831. *tʰwèk   "to raise a little"

Koman: UDUK tʰwákáráɗ "to grow, of plants at sprouting stage"   [stem plus NS *r iter. (i.e., put out multiple shoots) plus NS *ɫ intr.]

SONGAY tégélé "to put one on the other, cross legs"   [stem plus probably NS *l iter., i.e., both legs are involved]

Kir-Abb: BERTHA θúgù "loft"   [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: ENil: BARI tög-gu "to prop"

Rub: IK ituk-et- "to heap (e.g., crops)"   *i- v. class pref. plus stem plus Ik ven.]

Rub: IK tuker- "to pick up carefully"   [stem plus NS *r iter.]

Apparent Sahelian semantic innovation: the Songay and Bari forms directly and the Bertha reflex indirectly presuppose a shift in meaning in the verb root from just raising to raising something and resting it on or against something else. The extended Ik shape does not have this implication, however.

832. *tʰwèr   "to pull off, tear off, scrape off"

Koman: UDUK tʰwār "to husk green maize, scrape skin off"

CSud: MM: LUGBARA tro "to pull off"

KUNAMA tora "bald"

Sah: KANURI tòròm "to rip off leaves" (H)

Kir-Abb: Nil: PWNil *twɛr "to scrape clean" (NAATH "to scrape dried or burnt food out of kettle; OCOLO "to be empy, be made sleek and clean")   [stem plus NS *m iter. concis.]

Kir-Abb: Nil: WNil: OCOLO [twar "to brush away all rubbish": LOAN from Koman (/Cwa/ for expected *Cwɛ)]

833. *tʰwiːm   "to hit"

CSud: ECS *ti "to hit"

KUNAMA timmi- "to beat, hit"

FOR tuum- "to build"   [C-# gemin. as iter.]

FOR tuumia "anvil"

Kir-Abb: Nil: WNil: OCOLO tiim "to bump into something in the dark"   [stem plus *'y n. suff.]

This root may reflect at original underlying shape, *tʰuhiːm, consisting of root 824 plus the Nilo-Saharan *-i itive and the *m iterative concisive extension.

834. *tʰwɔ̀ːŋkʰ   "shallow depression"

KUNAMA tonkola, tokola "valley, plain between two mountains"   [stem plus NS *l or *ɫ n. suff.]

SONGAY táŋká "not very deep hole"   [stem plus NS *-Vh n. suff. (to account for tone-raising)]

Astab: Nub: DILING twake "trough"

Kir-Abb: Nil: WNil: NAATH twɔk "dish"

Rub: IK tɔk "cavity below the throat"

Eastern Sahelian semantic innovation: A shared reapplication of this root word to a shallow wooden container appears in the Astaboran and Kir-Abbaian reflexes. The shift is not present in the Rub reflex, however.

<div align="center">

PROTO-NILO-SAHARAN STEM-INITIAL *tʰ or *t̪ʰ

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835. *tʰāb OR *t̪ʰāp   "upper arm"

FOR katab "shoulder" (B)   [NS *kʰ n. pref. plus stem]

Astab: Nub: MIDOB táamí "upper arm"   [Nubian *b > Midob /m/ regularly here; V > V: may be regular result of *b > *m /#CV_V#]

Kir-Abb: BERTHA θàbá "arm/hand"

Kir-Abb: Nil: SNil: Tato [*tapan "feather": probable LOAN from Rub]   [stem plus NS *n n. suff.]

Rub: IK taban "wing"   [stem plus NS *n n. suff.]

Other possible reconstructions: *tʰāb or *t̪ʰāp. The For word has been proposed to be a borrowing of ARABIC katf. But the existence of highly plausible cognates in Eastern Sahelian languages makes that solution improbable.

836. *tʰɔ:l OR *t̪ʰɔ:l "to drip"
KUNAMA tollo- "to drip"
Sah: KANURI tòl "to drip"
Kir-Abb: Nil: SNil: Kalenjin *to:li:l "pond"   [stem plus NS *l or *l̪ n. suff., *tɔ:li:l, with V harmony > *to:li:l]

Rub: Soo itɔl "to melt"   [*i- v. class pref. plus stem]

PROTO-NILO-SAHARAN STEM-INITIAL *tʰ or *t

837. *tʰɛyd OR *tɛyd "to make pots"
KUNAMA tirma "pot"   [stem plus NS *m n. suff.]
FOR teer- "to make pots; to forge (metal)"
Maban: MABA atirik, PL. atirinyi "pitcher"   [NS *a- n. deriv. pref. plus stem]
Kir-Abb: Nil: ENil: MAASAI [ol-téréet "pot": LOAN from Kalenjin (fossil Kalenjin suff.)]   [stem plus Kalenjin n. sing. 2ndary suff.]
Kir-Abb: Nil: SNil: Kalenjin *ter "pot"

The differing derivational morphologies of the Kunama, Maba, and Kalenjin reflexes show them to be three separate derivations of words for "pot" from the verb.

PROTO-NILO-SAHARAN STEM-INITIAL *tʰ or *t̪ʰ or *t̪ (*T₁)

838. *T₁àp' "to pick up (something)"
KUNAMA tafa- "to lift"
Sah: KANURI tàwàrà "to provide"   [stem plus NS *r iter. plus NS *-a dispunc.]

Sah: ZAGHAWA tab- "to bring"
Kir-Abb: Nil: ENil: TESO -tap "to touch"
Rub: SOO [tab "to feel (with hands)": LOAN from Ateker (expected *taɓ as in IK reflex)]
Rub: IK taɓak- "to carry"   [stem plus NS *kʰ iter. (as dur.)]

839. *T₁āwād "gullet"
KUNAMA torontora "gullet, crop, wattles"   [redup. stem with epenthetic nasal inserted; generalization of regular *d > r /CV_(V)C from 1st to 2nd *d in word; for NS tendency to redup. words for throat, see also root 512]

Kir-Abb: GAAM tɔ̄ɔ̄r "Adam's apple, larynx, throat"
Rub: SOO tawad "nape"

840. *T₁ēk' "to bend (intr.), of a part of body"
KUNAMA takaio- "to bow head"   [stem plus NS *'y ess.-act.]
SONGAY téyní "to sway in dancing, swing, walk tottering"   [stem plus NS *n dur. plus NS *'y ess.-act.]
Kir-Abb: GAAM tɛ̄ɛ̄r- "to limp, walk unsteadily"   [< *teker, stem plus NS *r iter.]
Kir-Abb: proto-Daju *teg- "bow (n.)"
Rub: IK itek'iték'- "to nod"   [*i- v. class pref. plus stem, redup. as iter.]

Rub: SOO têʄ "bow (n.)"   [PRub *k' > Soo /ʄ/]
Eastern Sahelian innovation: derivation of a noun for the weapon, the bow (presumably by tone shift?).

841. *T₁ô:p' "to strike (thing)"
KUNAMA tuburu- "to trample"   [stem plus *r iter.; for NS *p' > b /Cu_, see Kunama rule 7 in Commentary to Table 2.10]

SONGAY tútúbú "to crush"   [stem plus NS *-uh ven., partially redup. as intens.]

Astab: Nub: DONGOLAWI tobbɛ "to pat, tap"   [stem plus NS *'y ess.-act. (*-a'y)]
Kir-Abb: Nil: ENil: BARI tɔb-ba "to give alarm (by drum)"
Kir-Abb: Nil: ENil: BARI tɔpɛt "alarm by drum"   [stem plus ENil *-et deverb. suff.]
Kir-Abb: Nil: SNil: NANDI top "anvil"
Rub: Ik toɓ- "to throw spear"

842. *ɔT₁wa:nz "three"
Koman: OPO ɔtusʸu "three"
Koman: KWAMA twazan "three"
Koman: S.KWAMA twa:s "three"   [stem plus NS *n modif. suff.]
CSud: PCS *ɔta "three"
Sah: DAZA, TEDA tozo "four"
Astab: PNub *tozk- "three" (DONGOLAWI tosk-; DILING tojog; KADARU t̪ɔjjɔg; NOBIIN túskó; etc.)   [stem plus NS *k adj. suff.]

The cluster *nz instead of the alternatively possible plain *z has been chosen here to explain the Central Sudanic outcome (*TVz > proto-Central Sudanic *ts, but *TVnC > *TV).

PROTO-NILO-SAHARAN STEM-INITIAL *tʰ or *t̪ʰ or *t̪ or *t̪' (*T₂)

843. *T₂à:l "to err, do wrong"
KUNAMA talame- "to spoil, damage, miss, fail"   [stem plus NS *m adj. suff., i.e., "bad," converted to v. "to go bad," hence, "to spoil, fail," etc.]

Sah: KANURI tàl "to make a mistake"
SONGAY táalí "to wrong"   [stem plus NS *-i itive (do wrong TO someone)]

Kir-Abb: Nil: ENil: Teso e-tal "ritual taboo"
Rub: IK [ɪtálɪ- "to prohibit, forbid": LOAN from Ateker (/l/ for expected *ɬ)]   [*i- v. class pref. plus stem (plus NS *-i itive?)]

844. *T₂áwp' "nephew, niece"
KUNAMA tofa "nephew, niece"
SONGAY túbéy "nephew, niece (sister's child)"   [stem plus NS *y n. suff.]
Kir-Abb: GAAM táwè "nephew, niece" (sister's child, brother's child")   [stem plus NS *y n. suff.]

Sahelian innovation: addition of Nilo-Saharan noun suffix in *y without overt semantic effect.

845. *T₂ar "log, pole, branch"

CSud: MM: LUGBARA àtràkàlà "branch" [CSud *V- n. pref. plus stem (*tra) plus MM *kV and *lV n. suff.]

KUNAMA tara "woods"

FOR tàar "leg" [semantic: "limb" > "limb of body"]

Kir-Abb: Nil: SNil: PAKOT [taːraːnyà "roof beam": LOAN from Rub (expected *tay- OR *tɑy-)] [stem plus NS *ɲ n. suff.]

Rub: SOO tarany "rafter" [stem plus NS *ɲ n. suff.]

846. *T₂él "brightness"

KUNAMA talau- "to shine, glitter" [stem plus NS *w punc. as denom.]

Sah: KANURI tél "ideophone of extreme whiteness of something" (expected *təl ?) [lack of exact vowel correspondence as often in Kanuri ideophones]

Sah: Ennedian *terd- "white" (ZAGHAWA terri; BERTI tiddi) [stem plus NSud *ṭ n./adj. suff.]

Kir-Abb: GAAM tél "sun"

PROTO-NILO-SAHARAN STEM-INITIAL *t'

847. *t'áp "to be tired, weary"

Koman: UDUK t'āpūl īs "to be worn out from much work" (īs REFL.) [stem plus *l iter.]

KUNAMA tabbako- "to not go to work, stay away from work" [stem plus NS *kʰ iter.]

SONGAY dabay-dabay "not stirring, calm, smooth (liquid)" (P) [stem plus NS *y n./adj. suff., redup.; semantics: "tired" > "at rest > "not moving]

Astab: Taman: TAMA tabaːnɛ "tired" [stem plus *n adj. suff.]

Kir-Abb: GAAM taw- "to be tired, weary, over-worked"

848. *t'āmp "to turn around"

Koman: UDUK t'ām "to coil"

Koman: UDUK t'ām īs "to wind" (īs REFL.)

Koman: UDUK t'āmpāl īs "to coil, as snake" (īs REFL.) [stem plus NS *l iter.]

Sah: KANURI tàmbár "to roll" [stem plus NS *r iter.]

849. t'èḽ "to lick"

Koman: UDUK t'ēɗ "to lick"

CSud: ECS *trɛ "to lap"

KUNAMA talɛ- "to taste, relish" (tala "palate")

FOR tall- "to chew" [gemin. as iter.]

Kir-Abb: GAAM tèḽ- "to lick"

Kir-Abb: Surmic: S.Surmic: DM *tar- "to lick" [NS *ḽ > Surmic *L > S.Surmic *r]

850. *t'èḽam "tongue" [root 849 plus NS *m n. suff.]

Sah: Bodelean *Telm- "tongue" (KANURI tə́làm, KANEMBU dəlàm; DAZA, TEDA termeso)

Maban: MABA delmik "tongue" [stem plus MABA -k n. sing. suff.]

851. *t'eypʰ "foliage" (suppletive pl. for "leaf")

Koman: UDUK jìpʰí' "leaf" [stem plus NS *-Vh n. deriv. suff.; [j] for expected *t' here and in 2nd Uduk item remains to be explained]

Koman: UDUK jìpʰínyā' "weeds (after first clear-ing)" [stem plus NS *ɲ n. suff. (in *-iɲa' shape)]

Koman: KOMO ts'ɛpɛpi "leaf" [stem partially redup. (as mass pl.?)]

KUNAMA tefa "grass"

Astab: NARA tɪfɪnɪ "leaf" (B) [stem plus NS *n n. suff., perhaps here as originally sing. marker]

Kir-Abb. GAAM teefa "grass" [stem plus NS *-ah n. deriv. suff.]

Suggested Northern Sudanic semantic innovation: meaning shift from "foliage" to "grass." Nara's use of the root to denote "leaf" can be understood, from its morphological addition, to be a rederivation of that meaning.

852. *t'ɛːyn "to become longer, lengthen"

Koman: UDUK t'ínín īs "to stretch one's body" (īs REFL.) [stem partially redup. as dur.]

KUNAMA -tin- "to rise (of plant, flower, etc.)"

Astab: NARA [tin "to rise"; probable LOAN from Kunama (expected *šin ?)]

Kir-Abb: Nil: ENil: TESO -tɛnar "to erect, raise up-right" [stem plus Ateker itive]

Northern Sudanic semantic innovation: shift from "become longer" to "become taller" to "rise."

853. *t'ɪ "very small"

Koman: UDUK t'ɪyátʼɪ "thin, tiny, of person; fine, of flour; tiny in general" [adj. by stem redup.]

FOR ìttí "small"

Kir-Abb: Nil: ENil: MAASAI -otí (fem. -kití) "small"

854. *t'oːl "to smoke, give off smoke"

Koman: UDUK [tól tō īs "to warm as earth by sun, swollen place by heat pack" (tō "thing"; īs REFL.): LOAN from language in which NS *t' > [t] (WNil?)]

KUNAMA dullu- "to smoke (of fire)"

Sah: KANURI tə́lín "ideophone of gushing out of smoke" [stem plus NS *-i itive plus *n dur.]

Kir-Abb: Nil: WNil: MABAAN təːllə "ashes"

Kri-Abb: Nil: ENil: TESO -tɔla "to smoke fish" [stem plus Ateker *-a neut.]

855. *t'óːl "smoke" [n. complement of verb root 854]

SONGAY dúllú "smoke"

Astab: PNub *tull- "smoke" (NOBIIN túllí) [stem plus NS *-uh n. suff.]

Kir-Abb: Nil: PWNil *tol "smoke" (JYANG tol, NAATH tuɔl; OCOLO tolo "thick smoke")

Whether this noun derives by a tone shift from the verb root 854 is unclear in the present state of the evidence.

856. *t'or "to be soft"

Koman: UDUK t'ŏrŏcátʼŏrŏc' "very soft, mushy (like a deflated ball)" [adj. by redup. stem plus *t' iter. in-tens.]

KUNAMA [tolle- "to be soft": LOAN (expected *tar- or *tall-)]

[< apparent ll ~ r altern., as in numerous other Kunama cases, but with alternant in /r/ not yet recorded]

Kir-Abb: Surmic: DM *colok "soft"

[stem plus NS *k adj. suff.; NS *r > Surmic *R > DM *l]

857. *t'or / *t'ur "to snap, break, cut"/"to strike off, cut off"

KUNAMA tarmo- "to rough-hew"

[stem plus NS *m iter. concis.]

SONGAY dorey "to pick (tubers, bulbs)" (P)

[stem plus NS *'y ess.-act.]

Kir-Abb: Nil: WNil: OCOLO tor "to break (intr.; of sticks, metal, etc.)"

Kir-Abb: Nil: WNil: OCOLO tur wɔk "to cut off, break off, as top of tree" (wɔk "off")

Kir-Abb: Nil: ENil: BARI tur-ja "to carve stone"

This root pair is another example of root alternants with mid and high vowels respectively, where the variant with the high vowel denotes a more intensive action (see root 126 and Chapter 5). Derived root 858 following shows that the variant with *u was used farther back in Nilo-Saharan history than is apparent from the non-extended reflexes cited here.

858. *t'úrúp OR *t'ūrūp "to cut ends off" [root 857 plus NS *p extend.]

Sah: KANURI tə́rə́p "to trim ends off"

Astab: Nub: DONGOLAWI turub "sickle"

Kir-Abb: Nil: ENil: BARI turup "to cut with a clean cut, lop"

Other possible reconstructions: *t'ūrúp OR *túrūp.

859. *t'ɔ́h "to break into small pieces"

Koman: UDUK t'ó' bwà "to divide into very small amounts by pinches" (bwà "in")

KUNAMA to- "to hammer"

Kir-Abb: Nil: WNil: OCOLO tɔy "to smash, break to pieces"

[stem plus NS *'y ess.-act.]

Probable Northern Sudanic semantic innovation: narrowing of application of verb, from breaking into pieces by whatever means, to doing so by beating or pounding.

860. *t'ɔm "female elephant"

KUNAMA doma "female elephant"

Kir-Abb: proto-Daju *təmose "elephant"

[stem plus NS *s n. suff.]

Kir-Abb: Nil: PENil *-tɔmɛ "elephant"

This root is argued to have originally applied to a cow elephant, as it does in Kunama, since other generic terms are clearly reconstructible to later and earlier periods in Nilo-Saharan history (see, respectively, roots 556 and 992). Its use as a generic term in Daju and Nilotic is thus proposed to be a Kir innovation.

861. *t'ɔ́pʰ OR *t'ɔ́p' "to soak"

CSud: PCS *t'ɔ "mud"

KUNAMA tofi- "to defecate"

[stem plus NS *-i itive?]

KUNAMA tofa "anal sphincter"

KUNAMA tafata "anus"

[< *tofata, stem plus NS *tʰ n. suff. with regular regressive V assim.]

Sah: KANURI táp "to pour down"

Kir-Abb: NYIMANG ʈofu "lake, pool"

[stem plus NS *-uh n. deriving suff.]

Kir-Abb: Nil: WNil: OCOLO tɔp "to soften by soaking"; JYANG tiɔp "damp, wet"

JYANG: pre-WNil *tɔpi, stem plus NS *'y n./adj. suff.?]

Other possible reconstructions: *t'ɔ́pʰ OR *t'ɔ́p'.

862. *t'ɔ́ːs "to hack (vegetation), chop"

CSud: PCS *tsɔ "to hack (with ax, hoe, etc.)"

SONGAY dáasí "ax"

Kir-Abb: GAAM təs "sound of hitting"

[stem plus NS *-ih n. deriv. suff.]

Kir-Abb: Nil: WNil: NAATH tɔt "planting season"

[semantics: time of chopping down vegetation in clearing fields for planting]

Rub: SOO [cós "to hit": LOAN from Surmic (/c/ < NS *t' is Surmic outcome)]

Kir-Abbaian semantic innovation: A shift in application of the verb to hitting with a tool in general sense is attested directly in the Gaam reflex and indirectly for Surmic in the Soo borrowing. The earlier sense seems to underlie the Nuer noun, however.

863. *t'ú "to squeeze"

Koman: UDUK t'ú kā gwápʰī' "to pinch" (kā "with"; gwápʰī' "claw, nail")

Sah: KANURI tùt "to press"

[earlier *tunt-, stem plus NS *n dur. plus NS *tʰ cont., would explain Kanuri /u/ (*tunt > *tu:t > tut)]

Kir-Abb: BERTHA s'ú- "to wipe"

Kir-Abb: Nil: ENil: TESO -tun "to clasp, clutch"

[stem plus NS *n dur.]

Rub: IK [tun- "to pinch": LOAN from Ateker (/t/ for expected IK *ts')]

864. *t'ūm "to sow, plant"

SONGAY dùmà "semer en poquet, planter"

Kir-Abb: GAAM tūm- "to sow, to throw"

[stem plus NS *-a dispunc.]

Kir-Abb: Nil: WNil: NAATH tuom "to disperse; to pierce but not through entirely"

In this particular case, the technical agricultural meaning is taken as preceding the non-agricultural meanings noted in the Kir-Abbaian instance, rather than the other way around. The reason for this unusual choice is that the single meaning that encompasses both scattering/throwing and penetration, and thus can account for two such divergent implications in one root word, is "to seed a field," an action that is accomplished either by broadcasting (i.e., sowing) or by sticking the seed in a hole.

865. *t'úmp "to pick up and remove"

Koman: UDUK t'úm . . . īs "to pick oneself up" (īs REFL.)

CSud: ECS *t'u "to take away"

Sah: KANURI təmbə̀k "to want to take a thing by force out of a person's hand"

[stem plus NS *k intens.]

Sah: KANURI təmbə̀t "to grab from, snatch violently"

[stem plus NS *tʰ cont. (as intens.)]

Kir-Abb: Nil: WNil: OCOLO tum "to fish by scooping up in basket"

Kir-Abb: Nil: ENil: MAASAI -túm "to get"

This root may derive from root 863 by addition of the Nilo-Saharan *m iterative concisive extension and the *p extendative extension.

866. *t'úmp "to put together"

Koman: UDUK t'úm . . . ī̀s "to crowd together, gather together in one place" (ī̀s REFL.)

KUNAMA tumben- "to bind, join" [stem plus NS *n dur.]

KUNAMA tumburo- "to knot" [stem plus NS *r iter.]

KUNAMA tumbuda "knot (n.)" [stem plus NSud *ṯ n./adj. suff.]

Kir-Abb: PNil [*tu:m "to asemble, gather (for a meeting)" (WNil: Luo *tum; ENil: MAA *-tum; PSNil *tū:m "ceremonial gathering"): LOAN from Koman]

It appears from the failure of Nilotic tonal correspondence, as reflected in the Southern Nilotic material—the reconstructed non-high Southern Nilotic tone should correspond to non-high tone in Uduk—that the proto-Nilotic root is a probable loan from an early Koman language.

867. *t'wà: OR *t'wā: "to say"

Koman: Sn Koman *t'wat'wa "to say" (OPO t'ɛt'a-; [redup. stem]
KWAMA t'wa:t'wa-)

CSud: ECS *t'a "to say"

SONGAY tù "to answer"

Kir-Abb: Nil: ENil: BARI [ta-ju "to say; to relate (story)": LOAN from CSud (expected *tö)]

Rub: SOO [at- "to say": LOAN from CSud (expected *ɔt-) before #CV# > Rub #VC#]

868. *t'wà:h OR *t'wā:h "mouth" [root 867 plus NS *-Vh n. deriv. suff.]

Koman: Sn Koman *t'waʔ "mouth" (UDUK t'wā̀;
OPO t'a; KWAMA t'waʔ)

CSud: WCSud *tà(à) "mouth" [PCS *t' > WCSud *t]

869. *t'wāɗ "to shine, become bright"

KUNAMA tor- "to become day, dawn, to become hoary"

Kir-Abb: GAAM tūrī "moon" [stem plus NS *-ih n. suff.]

Kir-Abb: C.Jebel: KELO tɔyaŋ "red" [stem plus NS *ŋ n./adj. suff.; regular NS *ɗ > Jebel *r > KELO Ø /V_V ([y] epenthetic here)]

Kir-Abb: Daju: LAGAWA tor- "to burn" (possible LOAN: expected *toɗ-?)

Kir-Abb: Nil: WNil: OCOLO twado "to be pure white"

Kir-Abb: Nil: ENil: BARI [lɔtɔr red": LOAN (expected *-toɗ-)] [NS *l adj. suff. (as pref. in ENil) plus stem]

Rub: IK ts'aɗ "fire" (ts'aɗí-) [stem plus NS *-ih n. deriv. suff.]

870. *t'wà:k OR *t'wā:k "to burst"

Koman: UDUK t'wàkʰ "to burst"

CSud: PCS *t'a "to burst"

KUNAMA tugu- "to fire (at), discharge, make a great noise"

Kir-Abb: Nil: WNil: OCOLO twäk "to bubble"

871. *t'wá:m OR *t'wā:m "to end"

Koman: UDUK t'wāmán "end" [stem plus NS *n n. suff.]

Sah: KANURI támò "conclusion, end; death"

Kir-Abb: Nil: ENil: BARI töm "edge, margin" [stem plus NS *w n. deriv. suff.]

872. *t'wɔ̀ş "to descend, go down"

CSud: PCS *co "to collapse, fall"

KUNAMA dos- "to sleep"

Sah: KANURI tùs "to take a rest" (túsù "rest") [n.: stem plus *-Vh n. deriv. suff.]

SONGAY dùsù "être enkylosé"

SONGAY dùsúŋgù "to fall asleep" [stem plus NS *ŋ punc.]

Kir-Abb: Nil: WNil: NAATH tɔc "to lie (down)";
tuac "to put to bed"

Northern Sudanic semantic innovation: narrowing of application to a particular kind of lowering oneself—lying down to rest or sleep.

PROTO-NILO-SAHARAN STEM-INITIAL *t' or *tʰ

873. *it' OR *itʰ "stone"

FOR diito, PL. kiito(ŋa) "stone" [stem plus NS *w n. suff. (*-aw > -o)]

Astab: Nub: NOBIIN kïd "stone, rock" [NS *kʰ n. pref. plus stem]

Kir-Abb: PNil *kɪt "mountain, stone, rock" (WNil: OCOLO, etc., kɪt; SNil: BARABAIG gɪ́jè:dà, PL. gijé:gà "mountain"] [NS *kʰ n. pref. plus stem; Barabaig: < kit-y-eta stem plus NS *'y n. suff. plus NS n. sing. 2ndary suff.]

Eastern Sahelian innovation: addition of Nilo-Saharan *kʰ noun prefix to stem without overt semantic effect.

PROTO-NILO-SAHARAN STEM-INITIAL *t' or *ṯ'

874. *t'iŋkʰ OR *ṯ'iŋkʰ OR *t'iŋk' OR *ṯ'iŋk' "to lean"

CSud: ECS *t'i "to lean"

Sah: KANURI tàngà "to lean against something" [stem plus NS *-a dispunc.]

Maban: MABA ndékél- "to lean against" [*n-dik-el-, Maba n- caus. plus stem plus NS *l iter. as dur.]

Kir-Abb: Surmic: DM: LARIM [tɛgɛt "stool": LOAN from ENil (adds ENil *-et deverb. suff.)] [stem plus ENil *-et n. deriv. suff.]

Kir-Abb: Nil: ENil: BARI tik-ö "to lean against"

Rub: SOO [tikiθ "rest time": LOAN (expected *'jik- or *'jiɗ-), possibly from ENil] [semantics: time when one reclines]

PROTO-NILO-SAHARAN STEM-INITIAL *T (*t or *tʰ or *t') or *Ṯ (*ṯ or *ṯʰ or *ṯ)

875. *Téw OR *Ṯéw "pot"

KUNAMA tawala "terracotta container" [stem plus NS *l or *ḷ n. suff.]

FOR téwé "pot" [stem plus NS *-Vh n. suff.]

Kir-Abb: Nil: PSNil *tew-u:t "pot" (PAKOT təwut;   [stem plus NS *tʰ n. suff. (fallen toge-
   DATOGA dahu:da)   ther in Datoga with the SNil n. 2nd-
                                                        ary suff.]

Other possible reconstructions: *Tēw or *Ṭēw.

PROTO-NILO-SAHARAN STEM-INITIAL *ṭ

876. *ṭà: "to rise, grow, increase"
Koman: UDUK cā "to grow, get big, increase, rise
   (of river); size, weight"
Koman: UDUK cāácā "large, big"   [adj. by stem redup.]
KUNAMA tata- "to rear, bring up"   [stem plus NS *tʰ cont. or redup. stem]
Sah: KANURI tàt "to rise, climb"   [stem plus NS *tʰ cont.]
FOR *tan- "to sprout"   [stem plus NS *n dur.]
FOR tàà "harvest season"   [stem plus probably NS *-Vh n. deriv.
                                                   suff.; semantics: time when crops are
                                                   fully grown]
Maban: MABA [tá-n-/tá-ká- "to climb"/"to climb [stem plus Maba *-n- single action suff.,
   (many or often)": LOAN (expected *ca-)   plus *-kV- plurac. (< NS *kʰ iter.)]
Kir-Abb: Nil: PENil *-cat "to recover, grow strong" [stem plus NS *tʰ cont.]
   (TESO -cat; BARI jad-du)
Rub: SOO ca' "anthill"   [stem plus NS *-Vh n. deriv. suff; se-
                                                   mantics: raised thing]

877. *ṭãm "to taste"
KUNAMA tamu- "to taste"
KUNAMA tantama "savory, tasty"   [redup. stem]
Sah: KANURI támtàm "flavor" (támtàmmà "tasty") [redup. stem; adj.: plus NS *-Vh n./adj.
                                                   suff.]
Sah: ZAGHAWA tamsi "tongue"   [stem plus NS *s n. suff.; this is a dis-
                                                   tinct root from Bodelean *Təlm- in
                                                   850 above]
Astab: Taman: MERARIT -tam- "to eat"
Astab: Nub: DONGOLAWI tance "taste"   [stem plus NS *ṣ n. suff.]
Kir-Abb: BERTHA (F) θámìn- "to taste"   [stem plus NS *n dur.]
Kir-Abb: NYIMANG tàm "to eat"
Kir-Abb: MAJANG ɗam "to eat"
Kir-Abb: Nil: PWNil *cam "to eat"
Kir-Abb: Nil: SNil: Kalenjin *camcam "to taste" [redup. stem]

Eastern Sahelian innovation: A shift of meaning to "to eat" is attested in all the unextended forms
of the verb in the Eastern Sahelian languages. The older sense of tasting remains only where vari-
ous suffixations have been added or, in the Southern Nilotic case, reduplication appears. The
Kanuri and Kunama adjectives may derive from a shared Northern Sudanic innovation, composed
of the stem reduplicated plus the Nilo-Saharan noun deriving suffix in *-Vh.

878. *ṭámp "to tie, fasten"
Koman: UDUK àcāmpúr "door"   [NS *a- n. deriv. pref. plus stem plus
                                                   NS *r n. suff.]
SONGAY tám "to fish with hook and line"

879. *ṭa:wr "hare"
CSud: ECS *ṭo "hare"
Astab: Taman: TAMA tawra "hare"
Kir-Abb: GAAM cawr "hare"

880. *ṭe OR *ṭeh "to wake"
CSud: PCS *ṭe "to get up, start off" (ECS "to wake   [CSud *V- pref. plus stem]
   up")
KUNAMA ta- "to recover (from a faint)"
Kir-Abb: Nil: WNil: OCOLO cïïw "to wake, rouse   [stem plus NS *w punc.]
   out of sleep"
Kir-Abb: Nil: ENil: MAASAI -išíú "to recover from [*i- v. class pref. plus stem plus NS
   illness"   *-uh ven.]

881. *ṭé:l "to scrape off"
Koman: UDUK cíl "to file"
CSud: PCS *tri "to clean, polish"
KUNAMA [šilla- "to comb": LOAN (expected   [stem plus NS *-a dispunc.?]
   *till-)]
SONGAY téeléndì "baldness"   [stem plus NS *n or *ŋ n. suff. plus
                                                      NSud *ṭ n./adj. suff.]
Kir-Abb: GAAM céld "broom"   [stem plus NS *tʰ n. suff.]

882. *ṭēl "to make smooth by peeling"
KUNAMA tala "scar"   [semantics: mark left by peeling away
                                                      skin]
KUNAMA talla "flat or smooth stone or rock"
Sah: KANURI tálálà "soft, smooth"   [stem plus NS *-ah n./adj. suff., par-
                                                      tially redup.]
Kir-Abb: GAAM cēl- "to plane, shave, smoothly
   strip wood"
Kir-Abb: proto-Daju *seRseR "smooth"
Kir-Abb: Nil: WNil: NAATH ciɛl "to peel cane of   [adj. by redup. stem]
   grainstalks"
Kir-Abb: Nil: ENil: TESO [aɪ-cɪl "to tear, rip":
   LOAN from WNil (NS *ɭ > PWNil *l, PENil *j)]

883. *ṭér OR *ṭēr "to hop"
KUNAMA tarfa-, taffa- "to walk stamping feet"   [stem plus NS *pʰ extend. intens.]
KUNAMA [tera- "to play, hop, skip (of boys,
   calves, etc.)": LOAN (from Nara?): expected
   *tara-)]
Sah: KANURI tárǝp "to trot (of donkey), jump,   [stem plus NS *p extend.]
   hop, hobble along"
Kir-Abb: Nil: WNil: OCOLO cyɛr "to stagger, totter"
Rub: SOO cér "to run"

884. *ṭéṣ "to set afire"
Koman: UDUK céš "to fry in oil"
CSud: PCS *tse OR *ce "to burn (intr.)"
Sah: KANURI tés "to stoke, start fire"

885. *ṭé:ṣ "to cheat"

Koman: UDUK ceš "to cheat"

CSud: MM: LUGBARA etsí "to deceive, cheat, mislead" [CSud *V- pref. plus stem]

Sah: KANURI təskən "of weak character" [stem plus NS *kʰ intr. plus NS *n adj. suff.]

886. *ṭèṣ OR *ṭēṣ "to bind"

Koman: UDUK ceš "to catch, snare, trap; to snare (fish)"

CSud: ECS *cɛ "to bind" (BALEDHA ce "tresser les cheveux")

Astab: NARA tes- "to bind, tie"

887. *ṭíɗ OR *ṭĩɗ "whole, entire"

Sah: KANURI tóɮòs "ideophone of spending entire day doing something" [stem plus NS *s prog., added since NS *d > KANURI l /_#]

Kir-Abb: Daju: SILA saɗa "all" [stem V reflex implies root shape *ṭeɗ]

Kir-Abb: Nil: WNil: NAATH cɪt "equally, the same"

Rub: IK tsíɗ "all"

888. *ṭĩ:k "to hear"

Koman: UDUK cĩkʰ "to hear"

Koman: UDUK cĩkʰ gwò "to obey" (gwò "word")

Koman: KOMO sik "to hear"

KUNAMA tik- "to hear"

Kir-Abb: C.Jebel [*sigi- "ear" (AKA sigii, MOLO sigi, KELO siidi): LOAN (expected *tig- or *jig-)] [KELO: stem plus NSud ṭ n. suff. (as sing.) with regular *g > Ø]

Kir-Abb: BERTHA θí:k- "to find"

Kir-Abb: Surmic [*ti:k- "to hear": LOAN (expected *Ti:k-)]

Kir-Abb: Nil: WNil: OCOLO cik "law, commandment" [semantics: that which is obeyed; cf. semantics of 2nd Uduk entry]

889. *ṭìŋkʰ "to enter"

Koman: UDUK cĩkʰ "to enter"

CSud: PCS *ṭi "opening (into something); mouth" [semantics: "entranceway" > "opening into something" > "mouth"]

KUNAMA tinka- "to put in purse"

Sah: KANURI təkk "to enter" [stem plus probably NS *kʰ intr.?]

For tigi "entrance" [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: GAAM cìi- "to insert"

Kir-Abb: Nil: ENil: TESO -sik "to fill up holes"

Rub: IK ɪtsík- "to invite" [*i- v. class pref. plus stem; semantics: to cause to enter]

Rub: IK [ɪsɪk- "to cover a hole with soil": LOAN from Ateker]

Northern Sudanic semantic innovation: A shift of the verb to causative application is directly present in the Kunama and Kir-Abbaian reflexes and implied in the Rub reflex, and can be argued to be indirectly evident in the proposed Kanuri verb derivation. The older intransitive sense is present in Koman and underlies the derived noun roots seen in Central Sudanic and For.

890. *ṭír "to be very dark"

Koman: UDUK cír "ebony tree"

KUNAMA tirota "black"

Sah: KANURI tərəmtərəm "very early morning" [stem plus NS *tʰ n./adj. suff.]

Kir-Abb: GAAM [tírí "ebony tree": LOAN (expected *cír)] [stem plus NS *m n. suff., redup.]

891. *ṭóŋkw "to sit, stay, stop"

Koman: UDUK cõkʰ "to sit on hauches, on toes"

Koman: Gumuz: SESE -cukw "to stand"

Sah: KANURI təŋgák "to doze" [stem plus NS *kʰ iter.]

FOR tòŋ, PL. tòŋà "house" [semantics: "stay" > "live, dwell" > "dwelling place"]

Kir-Abb: NYIMANG tuŋ "to lie down"

Kir-Abb: proto-Daju *səŋd- "to sleep" [stem plus NS *tʰ cont.]

Kir-Abb: Daju: SHATT [toŋ- "to be present": LOAN (expected *suŋ- OR *səŋ-)]

Kir-Abb: Surmic *Tuŋ(g)- "to sleep"

Kir-Abb: Nil: ENil: BARI jɔŋ-ga "to spend time" [*T > C.Surmic *t, Majang /d/]

Possible Kir semantic innovation: All the regularly corresponding Kir reflexes except Bari's show or imply a narrowing of meaning to a particular kind of staying in place, namely, lying down.

892. *ṭōr "to be begrudging, recalcitrant"

CSud: BALEDHA d'rò "être mécontent" [BALEDHA d'r < PCS *tr]

KUNAMA taro- "to be stingy"

Kir-Abb: GAAM cūrd- "to be mean, selfish" [stem plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI jʊr-ja "to flout (authority)"

893. *ṭɔ: OR *ṭɔ:h "to see"

CSud: PCS *ṭɔ OR *t'ɔ "to see"

KUNAMA toi- "to look here and there with wide-open eyes" [stem plus NS *'y ess.-act.]

Sah: ZAGHAWA to- "to know"

Kir-Abb: Nil: ENil: TESO -co "wise, clever"

Kir-Abb: Nil: ENil: TESO -coikinit "to note, be aware of" [stem plus Ateker *-ikin benef. plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI jʊjʊ-ja "to investigate" [redup. stem as freq.]

Kir-Abb: Nil: ENil: BARI [swöt, PL. swö "ear": LOAN from language in which NS *ṭ > s (Daju?)] [probably stem plus NS *w n. deriving suff.; semantics: "see" > "perceive, sense (in general)" > n. "ear"]

Apparent Saharo-Sahelian innovation: shift from seeing to the consequence of seeing—becoming aware of, knowing, perceiving in general. Bari word borrowing shows an underlying renarrowing of meaning from "perceive in general" to "hear."

894. *ṭū "to rise, go up, climb"

Koman: UDUK cū mís "to arise, stand up" (mís "up")

CSud: PCS *ṭu "to rise"

Sah: KANURI *tú "to set up (umbrella, net, trap)" [intr. > tr. usage]

Sah: KANURI kúdù "boil" [NS *kʰ n. pref. plus stem; semantics: "rise" > "swell (of boil, etc.)"]

FOR tu- "to grow up"

SONGAY tùn "to arise, stand up" [stem plus NS *n dur.]
Kir-Abb: GAAM cuud- to ascend, climb, rise" [stem plus NS *tʰ cont.]
Kir-Abb: proto-Daju *suude "anthill" [stem plus NS *tʰ n. suff.]
Kir-Abb: Nil: WNil: OCOLO cwɔy "to glide, soar" [stem plus NS *'y ess.-act.]
Kir-Abb: Nil: ENil: BARI jʊ-ja "to sprout"
Kir-Abb: Nil: ENil: BARI jʊɛt, PL. jʊɛsi "bud" [stem plus ENil *-et deverb. suff.]
PRub *oc "to climb; to lift"

895. *ʈū:d "to enclose, tie up"
Koman: UDUK cūr "to fence"
CSud: ECS *ʈu OR *ʈ'u "to bind"
KUNAMA tud- "to hide (tr.)"
FOR tùurù "deaf" [stem plus NS *-Vh n./adj. suff.; semantics: widespread African pattern of deriving "deaf" from "to stop up" (< earlier "close, shut" in this case)]

Astab: Nub: DILING tur "to shut, close"
Kir-Abb: GAAM cūr- "to join, knot"
Kir-Abb: Nil: PWNil *cur "blind" (NAATH cur; OCOLO cör) [semantics: "shut" > "blind" is a common African semantic pattern]

896. *ʈùkʰ "to touch"
KUNAMA tuku- "to touch"
SONGAY túkù "to touch" [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: NAATH cuok "to press upon; to sit close, touching; to bump into each other"
Kir-Abb: Nil: ENil: BARI juk- "to conform (intr.), be convenient" [semantics: to conform in shape < to touch at every point (when put together)]

Rub: IK itsuk- "to pump bellows" [*i- v. class pref. plus stem; semantics: to press (down) on bellows]

Rub: IK tsutsuk- "to make soft (by squeezing, rubbing)" [partially redup. stem as freq., i.e., keep pressing with the fingers]

Eastern Sahelian semantic innovation: The Western Nilotic and Rub transitive reflexes show a shift from touching in general to touching that involves pressing against or together.

897. *ʈūl OR *ʈūɭ "phlegm"
KUNAMA dula "saliva"
Sah: KANURI tɔlìn "mucus" [stem plus NS *n or *ŋ n. suff.]
Sah: KANURI tɔ́lèlè "spittle" [stem plus NS *y n. deriv. suff., partially redup.]

Maban: MABA cula "coughing" [stem plus NS *-ah n. suff. or *-a pl.]

898. *ʈùmp "to drip"
Koman: UDUK cúnycúmííɗ "to seep out" [redup. stem plus NS *ɭ intr.]
KUNAMA tumbia "sap" [stem plus NS *'y n. suff.]
Kir-Abb: Daju: SILA sume "wet" [stem plus NS *y adj. suff.?]
Kir-Abb: Surmic: S.Surmic *tum "rain"
Kir-Abb: Nil: ENil: BARI [sumuti, PL. somot "fish": LOAN from a language in which NS *ʈ > s and *mp > *m (Daju?)] [stem plus NS *tʰ n. suff.; semantics: "drip" > "flow/float" or "be wet," as in the Daju reflex]

Rub: SOO [tumuθ "cloud": LOAN, probably from Surmic (expected *cubuθ)] [stem plus NS *s n. suff.]

899. *ʈú'w OR *ʈúw "to call out"
Koman: UDUK cúú "to cry or cry out"
Koman: UDUK cúúwā' "yell, cry" (n.) [stem plus NS *-ah n. deriv. suff.]
Sah: KANURI tútútú "ideophone of screaming or crying" [triple redup. stem as intens./iter.]
Astab: Taman: TAMA tu:w- "to count"
Kir-Abb: Nil: WNil: OCOLO cwow "to exclaim in disgust"
Kir-Abb: Nil: WNil: NAATH cut "name" [stem plus NS *tʰ n. suff.]
Kir-Abb: Nil: ENil: BARI juju- "to warn, exhort" [redup. stem as freq.]
Kir-Abb: Nil: ENil: BARI [sʊt "to provoke (by words)": LOAN from language in which NS *ʈ > s (Daju?)] [stem plus NS *tʰ cont.]

900. *ʈwá: "stick"
Koman: Sn Koman *cwá "tree" (UDUK cwá, KOMO sáá; KWAMA swaala) [Kwama: stem plus NS *l n. suff.]
Sah: KANURI tàmármàrí "pillar" [stem plus NS *m n. suff. (regular *ʈwa:m- > KANURI tam-) plus NS *r n. suff., partially redup.]
Maban: MABA cum, PL. cumini "staff, club" [stem plus NS *m n. suff. (< *cwa:m)]
Kir-Abb: NYIMANG toma ~ tuma "tree"

Saharo-Sahelian innovation: derivation of a new noun shape by addition of the Nilo-Saharan *m noun suffix to the stem, probably with the meaning "wood."

901. *ʈwá:kʰ "to travel"
Koman: UDUK cwákʰa' "path" [stem plus NS *-Vh n. deriv. suff.]
Astab: Nub: DILING twak-er "to enter" [stem plus Nubian *r caus.]
Kir-Abb: Nil: WNil: OCOLO cwäk "people sent by chief to collect debt" [semantics: people who travel to where debtor lives]

902. *ʈwɛ̂l OR *ʈwɛ̂l "to sparkle, glitter"
Koman: UDUK àcúl "star; firefly" [NS *a- n. deriv. pref. plus stem]
Astab: Nub: DONGOLAWI tulunc- "to flash continuously, glitter, sparkle, gleam" [stem plus NS *n dur. plus NS *ʈ' iter. intens.]
Kir-Abb: Nil: WNil: OCOLO cwɛl "to glitter, glisten"

903. *ʈwi "to kneel, bend the knee"
KUNAMA tu- "to kneel"
Sah: DAZA, TEDA ti "knee"
Astab: Nub: KADARU kóʈù "knee" [NS *kʰ n. pref. plus stem]
Kir-Abb: C.Jebel *kuju "knee" (AKA kusu, MOLO kudu, KELO kusu) [NS *kʰ n. pref. plus stem]

Shared Eastern Sudanic innovation: addition of Nilo-Saharan *kʰ noun prefix ('movable k') to root in meaning "knee." The semantic innovation can be tentatively projected back to the Saharo-Sahelian period because the same noun meaning is present in the Tubu group of Saharan, and because the addition of the *kʰ noun prefix, as its nickname 'movable k' suggests, is often added in instances like this without implication of a separate noun derivation (e.g., Saharan entries in root 569).

904. *ţwí:kw "lower leg"

Koman: UDUK àcūkʰ "hoof" [NS *a- n. deriv. pref. plus stem]

Koman: GUMUZ -cukwa IN k'uci-cukwa "knee" [k'uci- "joint," for which see root 1110; GUMUZ cogwa "leg" is a distinct root]

CSud: PCS *ţwi "knee; elbow"

KUNAMA tuga "knee"

FOR tugi "hip"

Kir-Abb: Nil: WNil: OCOLO acwik "hip joint" [NS *a- n. deriv. pref. plus stem]

Sudanic innovation: The Koman meanings suggest an original sense "leg" or "foreleg," with a re-application of the root in Sudanic to the knee, as attested in Central Sudanic and Kunama. Sahelian semantic inovation: a further meaning shift to the hip area, probably via an intermediate shift from "knee" to "thigh," can then be argued for the Sahelian group.

905. *ţwí:kʰw "to wet"

Koman: UDUK cúkʰ "to filter, strain water through ashes"

Koman: UDUK cūkʰúd̶ "to seep, of water" [stem plus NS *ļ intr.]

CSud: PCS *ţu "to wet"

Rub: Wn Rub *cuikw- "cold" (SOO cikwá'; NYANG'I cukɛ) [Soo stem plus NS *-ah n./adj. deriv. suff.; Nyang'i: stem plus *y n./adj. suff.]

PROTO-NILO-SAHARAN STEM-INITIAL *ţ or *tʰ or *Ţ (*ţ̣ or *ţ̣ʰ or *ţ̣)

906. *ţeB OR *tʰeB OR *ŢeB "leather strap, thong" [B = b or ɓ]

KUNAMA taba "leather strap, thong"

SONGAY tèw "leather strap, thong"

Astab: NARA tobo, PL. tebta "shoe thong"

Other possible reconstructions: *ţep or *tʰep or *Ţep. The reconstructed tone of this root should be either low or mid.

PROTO-NILO-SAHARAN STEM-INITIAL *ţʰ

907. *ţʰ- << demonstrative stem >> (*ţʰa "that over ḟhere"; *ţʰi "that nearby"?)

Koman: UDUK cʰáán "that" [stem plus NS *en dem. (root 256), as in UDUK tʰaan "that" (root 792)]

Koman: cʰíţʰtʰáān "there" [stem (in shape *cʰi-) plus UDUK tʰaan (792)]

CSud: PCS *ci/*ca "that (nearby)"/"that (distant)"

KUNAMA ši "thing"

Sah: KANURI câ "past time"

Kiri-Abb: NYIMANG aţ̣an "now" [stem in VCV shape plus *n adv. suff.]

Kir-Abb: proto-Daju *ce "she" [stem plus NS *ɛh 3rd person sing. root (1588)]

Kir-Abb: Daju: SHATT cV- << 3rd person subj. marker >>

Kir-Abb: Surmic: DM: DIDINGA ci "that"

Kir-Abb: PNil *encei "they" (ENil: LOTUKO isi; Ongamo-Maa *nıncɛ; TURKANA kècì, kèsì "they," ŋèsì "she, he, it"; PSNil *ıca) [< *-ŋ-cɛ, consisting of *ŋa- topic pron. marker (Sahelian *ŋga-, root) plus Kir sing. pron. seen in Daju *ce, in canonical pron. shape VCV > *ɛŋcɛ, pluralized by addition of *-ih pl suff. > *encɛi. In some ENil languages, V harmony yielded final shape *encei. Maa-Ongamo: apparent V metathesis; initial *n- may be redundant pl. Turkana pl.: NS *kʰ pl. plus *encei; sing. formed by substitution of *ŋ singul. marker for pl. *k-. PSNil *ıca < ıcı-a < *ɛncɛı-a by regressive V assim. and V harmony and regular medial *n loss]

Kir-Abb: Nil: WNil: OCOLO aca "over there"

Kir-Abb: Nil: WNil: LUO ca "that"

Kir-Abb: Nil: ENil: TESO -ce "some; other" [probably < *cay, stem plus NS *y n./adj. suff.]

Kir-Abb: Nil: ENil: BARI jamɛ "matter, affair" [stem plus NS *m n. suff.]

Kir-Abb: Nil: ENil: BARI ajɛ "already" [NS *a- n./adj. deriv. pref. plus probably stem plus NS *y n./adj. suff. as in TESO -ce "some; other"]

Kir-Abb: Nil: PSNil *ɛca "we" [Nil 3rd person pl. pron. root *encɛi converted to 1st person pl. by substitution of NS *ah 1st person root (1583) for final *ɛı; see next entry for parallel derivation of SNil 2nd person pl. pron.]

Kir-Abb: Nil: PSNil *ɛcu "you (pl.)" [Nil 3rd person pl. pron. root *encɛi converted to 2nd person pl. by substitution of NS *u 2nd person root (1403); see previous entry for parallel derivation of SNil 1st person pl. pron.]

Kir-Abb: Nil: SNil: Kalenjin *ca "that referred to"

Kir-Abb: Nil: SNil: Kalenjin *cʊ/*cʊn "these"/"those" [1st entry: probable *ci-w, stem in shape *ci plus old NS *-iw pl. marker; 2nd entry: 1st form plus SNil *-n marker of distance in dem.]

PRub *ící "he, she, it" (IK ńts, SOO ícá) [IK adds pref. *N- (NS pron. topic marker *ŋg-, root 486) to all 1st and 3rd person pron.; SOO suffixes *-a to all of its pron.]

Rub: SOO ca "just" (adv.)

Rub: SOO ic "who?" [NS *y- interrog. particle (root 1467) plus stem]

A shared Kir innovation of a singular third person pronoun *(ɛ)ţʰɛ, by addition of the third person root *ɛh (> Kir *ɛ) in the vowel slots of the canonical VCV pronoun format, is present on the surface in the Daju pronoun *ce and underlies the Nilotic plural formation for "they." For the structure of Nilotic "they," see the discussions of the particular Nilotic reflexes. The Rub third person singular pronoun must be reckoned a separate derivation from the root in its shape *ci ("this one"), by conversion of the root to the VCV shape of many Nilo-Saharan personal pronouns.

908. *ţʰá "to be clear, be bright"

Koman: UDUK cʰáwcʰáw "clean, of white objects"

CSud: ECS *ca "to shine" [stem plus NS *w n./adj. suff., redup.]

FOR tóó "day(light)"					[*taw, stem plus NS *w deverb. suff.]
Kir-Abb: Nil: PWNil *ca:ŋ "sun" (OCOLO cäŋ)		[stem plus NS *ŋ n. suff.]
Kir-Abb: Nil: ENil: TESO -ca "to shine, be transpar-		[possible CSud loanword?]
ent, be clear (of weather)"

A short vowel is to be reconstructed here because it is required by the apparent derived noun root 909.

909. *tʰa "milk"

Sah: KANURI câm "milk"						[stem plus NS *m n. suff.]
Astab: NARA sa "milk"
Kir-Abb: Nil: PWNil *cak "milk"					[stem plus NS *kʰ pl. suff., as mass-pl.]

This root may derive from the verb of root 908 by reference to the whiteness of milk obtained in quantity from an animal. Kalenjin (Southern Nilotic) *ce: "milk" fails vowel correspondence requirements and so cannot be considered cognate with this root; see root 917 for its probable relationship.

910. *tʰa OR *tʰa: "to pass (intr.)"

Koman: UDUK cʰā' "wanderer"					[stem plus NS *-Vh n. deriv. suff.]
KUNAMA ša- "to pass"
Kir-Abb: Nil: ENil: BARI jaja-'yu "to stride"			[redup. stem as iter.]
PRub *ac "to come"

911. *tʰab OR *tʰa:ɓ "to stop (intr.)"

Koman: UDUK cʰāɓ "to stay, remain (sing. subj.)"
SONGAY tàbbátì "motionless"					[probable *tab-p-at-, stem plus NS *p
											extend. plus NS *tʰ n./adj. suff.]

Kir-Abb: Nil: WNil: JYANG cap "to squat"
Kir-Abb: Nil: ENil: BARI jap "to give up
(unfinished); leave unfinished"

912. *tʰàkʰ OR *tʰà:kʰ "to fool, make foolish"

Koman: UDUK cʰàh "to ridicule, to deny emphati-
cally"
CSud: PCS *ca "to induce by trickery"
Kir-Abb: GAAM càa- "to surprise" (*cag-)

913. *tʰar "to darken"

KUNAMA -šarid- "to dirty"						[stem plus NSud *t̞ caus.]
Kir-Abb: Nil: WNil: OCOLO car "to shade, cover"

914. *tʰáràh "black" [root 913 plus NS *-Vh n./adj. deriv. suff.]

Sah: KANURI cárà "black" (of donkey, horse)
Kir-Abb: Nil: PWNil *car "black"

915. *tʰàypʰ "to remove, take away"

CSud: PCS *cɛ "to send (away)"
KUNAMA šeifo- "to unload, unsaddle"
Kir-Abb: GAAM cəf- "to remove grass (by rake or
dibble)"
Kir-Abb: Nil: ENil: TESO [-cap "to clear away
wëeds": LOAN (from Surmic?): expected *-cɛp]
Rub: IK tsɛf "bush cleared for cultivation"

Eastern Sahelian semantic innovation: A narrowing of the application of verb to the removing of weeds or bush for cultivation appears in the the Rub and Gaam reflexes and in the loanword shape of the verb in Teso of Eastern Nilotic, itself borrowed from an Eastern Sahelian language in which PNS *ɛ fell together with *a.

916. *tʰém "to scatter, disperse (intr.) after gathering"

Koman: UDUK cʰém ... p'én "to separate and
scatter after gathering, to disperse in different
directions" (p'én "down")
KUNAMA šamana- "to swarm (of bees)"			[stem plus NS *n dur. or else stem plus
											NS *n n. suff., with v. by back-for-
											mation < earlier n.]

SONGAY tèsèŋgéerì "to spread by scattering, to		[partially redup. stem, *tesem- (NS *tʰ
spread out to dry"								> SONGAY t /#_, > s /V_), plus NS
											*k caus. plus NS *r iter. plus NS *-i
											itive]

917. *tʰɛ: OR *tʰɛ:h "to drain off, let flow"

CSud: MANGBETU -ɔcɛ "to filter water"				[CSud *V- pref. plus stem]
KUNAMA še- "to filter, drain"
Sah: KANURI cècé "to drain off, pour top off"			[redup. stem as freq.]
Kir-Abb: Nil: SNil: Kalenjin *ce: "milk"				[probable *cɛ:y, stem plus NS *y n.
											suff. to explain ATR shift; this word
											is NOT cognate with PWNil *cak
											"milk" (see 909 above)]
Rub: SOO kaceu "river"						[NS *kʰ n. pref. plus stem plus NS *w
											n. suff.]

918. *tʰék "to appear, emerge, come into being"

Koman: UDUK cʰékín "to arrive"					[stem plus NS *-i itive plus NS *n dur.]
SONGAY téjí "new"							[stem plus NS *'y (*-i'y) n./adj. deriv.
											suff.; (*tag-i > *taji > teji by regular
											Songay sound shifts)]
Rub: IK ɪtsékét- "to begin"					[*i- v. class pref. plus stem plus NS *tʰ
											cont.]

919. *tʰél "to shout"

CSud: ECS *trɛ "to speak loudly" (LUGBARA tré)
Sah: KANURI càlíp "to talk nonsense crazily" (H)		[stem plus NS *p extend. or *pʰ extend.
											intens.]
Kir-Abb: Nil: ENil: TESO -cɛl "to shout, quarrel"

920. *tʰémpʰ "to wet"

CSud: PCS *cɛ "to wet"
KUNAMA šenfiri- "to rain heavily"
Sah: KANURI càmbál "to slosh" (H)					[stem plus NS *r iter.]
Sah: KANURI cáp "ideophone of splashing water on		[stem plus NS *l iter.]
face"
Sah: KANURI cápál "pool'
											[stem plus NS *l n. suff., added since
											*NC[-voice] > C /_# in Kanuri]
Astab: Nub: DONGOLAWI tabbɛ "to moisten, wet"		[stem plus NS *'y (*-a'y) ess-act.]

This root can be derived from 917 by addition of the Nilo-Saharan *m iterative concisive and *pʰ extendative intensive extensions to that simple verb.

921. *ţʰì "to bring forth, put forth"

Koman: UDUK cʰǐ "to give"
Koman: GUMUZ *c- "to give"
KUNAMA ši- "to bring forth, cause, produce"
Sah: KANURI cì "to get up, start"
Kir-Abb: Nil: WNil: OCOLO ciw "to appear"   [stem plus NS *w punc.]
Rub: IK tsídz- "to carry"   [< *tsi'j-, stem plus NS *'y ess.-act.]
Rub: IK tsídzet- "to get up in a rush"   [previous IK v. plus IK -et ven.]

Koman semantic innovation: "to give." Saharo-Sahelian semantic innovation: shift from transitive to intransitive sense, i.e., from "bring forth" to "come forth."

922. ţʰìŋ OR *ţʰíŋ "to bend, turn (intr.)"

Koman: UDUK cʰíŋ k'ŏɗ "to go backwards" (k'ŏɗ "back")
Koman: UDUK cʰíŋìţā ís "to writhe in pain" (ís REFL.)   [stem plus NS *ţ' tr. (as intens.?) plus NS *-a dispunc. (*ţ' > [ţ] /V_V)]
Astab: Taman: TAMA tɪŋ "elbow"
Kir-Abb: Daju: NYALA ceŋ "to turn"
Kir-Abb: Nil: ENil: TESO e-siŋorot "elbow"   [stem plus NS *r and *tʰ n. suff.]

923. *ţʰíţ' "point, tip, edge"

Koman: UDUK cʰíţ' "small, lightweight ax"   [semantics: point of face]
CSud: PCS *ci "chin"   [*ki-jit-, NS kʰ n. pref. plus stem; semantics: "tip, edge" > "edge (of stream)"]
Kir-Abb: Nil: ENil: BARI kijit, PL. kijisi "shore, bank (of river)"
Rub: IK tsíts'ɔ́n "tip, point"   [stem plus NS *n n. suff.]

924. *ţʰɔ́: "to rain heavily"

Koman: UDUK cʰɔ́ "to drive, of rain into house"
Sah: KANURI cú(ú) "ideophone of rain coming down in buckets"
Maban: MABA co-aire "to water, wet, moisten" (aire "mettre")
Maban: MIMI ţoţo "cold"   [adj. by redup. stem]
Kir-Abb: Nil: ENil: TESO e-icoi "pool"   [*i- v. class pref. plus stem plus NS *'y n. deriv. suff.]
Rub: IK tsóé-am "rain coming in a western direction"   [stem *tsó- plus NS *y n. suff. (*ay > e)]

925. *ţʰɔ́:ɗ "to revolve, go round"

Koman: UDUK cʰɔ̌nycōr "to roll by tossing underhand"   [partially redup. stem (nasal is epenthetic here)]
CSud: PCS *co "to turn (intr.)"   [expected *cu, however?]
CSud: PCS *co "animal pen"   [n. derivative of v.; semantics: pen among Nilo-Saharan peoples is typically round]
FOR toje "reel" (in spinning thread)   [stem plus NS *-eh n. deriv. suff.]
SONGAY tórkò "cart, wheelbarrow"   [stem plus NS *kʰ iter. plus NS *-Vh n. deriv. suff.]
Astab: Nub: NOBIIN tòoré "horizontal axle of waterwheel"   [stem plus NS *-y n. suff.]

Kir-Abb: BERTHA [θóːr- "to twist": LOAN (expected *ɗ instead of /r/)]

926. *ţʰɔ̀l "to secrete or emit fluid (from body)"

Sah: KANURI còlló "urine"   [stem plus NS *-Vh n. deriv. suff.]
Sah: KANURI còllò "to urinate"   [v. < n. by tone shift]
Sah: KANURI còllòrám "bladder'   [n. "urine" plus NS *r and *m n. suff.]
Kir-Abb: GAAM culd "fluid afterbirth"   [stem plus NSud *ţ n. suff.]
Kir-Abb: proto-Daju *-calag- "to vomit"   [stem plus NS *k intens.]
Kir-Abb: Surmic: DM *cɔlɔ "excrement"   [stem plus NS *-Vh n. deriv. suff.]
Rub: SOO ícòlol "to leak"   [*i- v. class pref. plus stem, partially redup. as freq.]

927. *ţʰɔ̀ŋk' "to stick into"

CSud: PCS *co "to stuff into" (BALEDHA cò)
KUNAMA šukula-, šukura- "to stir, tease, try to drive out" (as from burrow)   [stem plus NS *r iter., added since NS *nk > k /#šV_V-# in Kunama, plus NS *-a dispunc.?]
Sah: KANURI còk "to dip into"
Sah: KANURI còŋgòl "to stab"   [stem plus NS *l iter. (> intens. in Kanuri)]
Kir-Abb: Nil: WNil: OCOLO cwŏk "to poke, stick"
Kir-Abb: Nil: ENil: BARI juk- "to fix"

928. *ţʰɔ́ŋk'ɔ́h "quiver (of arrows)"

SONGAY tóŋgó "quiver"
Kir-Abb: Nil: SNil: Kalenjin *cóːk "scabbord"
Kir-Abb: Nil: SNil: Central Kalenjin [*sɔŋk- "empty quiver": LOAN from language in which NS *ţʰ > s or š and *ŋk' was preserved, i.e., a non-Kir-Abbaian language]

This root appears to be a noun derivation of the verb root 927. Two possible semantic histories can be suggested. One is that root 928 originally referred collectively to "arrows," as weaponry that "stick into" prey; the other is that a quiver (or a scabbord, in the case of the Kalenjin reflex) is a container, in which one sticks one's weaponry for carrying.

929. *ţʰɔ́ɗ "to be weak, be lacking in essential attributes"

KUNAMA šoro- "to be disappointed"
Sah: KANURI cárì "old; old man"   [stem plus NS *'y n./adj. deriv. suff.]
SONGAY tárú "to be tasteless, insipid, watered down"   [stem plus NS *-uh ven.]
Kir-Abb: NYIMANG ţor "lame"
Kir-Abb: Nil: WNil: OCOLO cwät "tasteless; perplexed"
PRub *cóɗ- "to be lame"

This root provides a possible counter-example to Rub's membership in Sahelian: Songay and Ocolo add an innovated sense "to be tasteless, insipid" that is not found in the Rub reflexes. At the same time, however, the membership of Rub along with Nyimang in Eastern Sahelian is reconfirmed by a different shared semantics innovation, of the meaning "lame."

930. *ţʰɔ̀:l "to poke"

Sah: KANURI còl "to poke"

Kir-Abb: GAAM cɔlgɔs- "to tickle in the ribs"

[stem plus NS *kʰ iter. plus NS *θ intens. or *s prog.]

Kir-Abb: Nil: ENil: BARI jɔlɔmun-dya "to jut out (of rock)"

[stem plus NS *m iter. concis. plus ENil *-u(n) ven.]

931. *tʰɔ́:r   "flowing water"

KUNAMA šororo- "to make sound of falling or flowing water"

[stem partially redup. as freq.]

Sah: KANURI cór "ideophone of sound of strong stream of liquid"

Kir-Abb: Nil: PENil *-córr- "spring, stream" (BARI jɔr "pond, pool"; Maa *-córr- "spring, water source")

932. *tʰwa:l   "to become long, tall, deep"

Koman: UDUK cʰwālālácʰwālāl "long-necked, as camels"

[partially redup. stem, redup. as adj.]

Astab: Nub: DILING twale "deep, sunken"

[stem plus NS *y n./adj. suff.]

Kir-Abb: Nil: PNil *cɔ:l "to lengthen, stretch out" (ENil: BARI lɔjɔ' "long"; lɔjɔlɔŋ "slender"; jɔlan "length"; SNil: Kalenjin *cɔ:l "to stretch, make straight")

[BARI lɔjɔl, ENil *l- attrib. pref. (NS *l adj. affix) plus stem; regular Bari /l/ -> Ø /_#; lɔjɔlɔŋ, ENil *l- attrib. pref. plus stem plus NS *ŋ n/adj. suff.; jɔlan, stem plus NS *n n. suff.]

PROTO-NILO-SAHARAN STEM-INITIAL *t'

933. *t'à:n   "to keep apart, keep separate"

CSud: PCS *t'a OR *ta "to block" (BALEDHA "to shut up, sequester")

KUNAMA tana- "to do attentatively, slowly, so as not to knock over something, etc."

[semantics: to do in such a way as to keep from touching a thing]

Sah: KANURI sàn "to pull apart (cotton)" (H)

Kir-Abb: GAAM ṭàan- "to avoid, dodge, evade"

934. *t'àwp'   "tip"

KUNAMA tofara "head (of match, nail, etc.)"

FOR tàbù "head"

[stem plus NS *r n. suff.]
[stem plus NS *-uh n. suff.]

Kir-Abb: GAAM tàw "up"

Kir-Abb: proto-Daju cabre "hill, mountain, stone"

[stem plus NS *r n. suff.]

Kir-Abb: Surmic: S.Surmic *šawb- (?) "head" (Nuclear Surmic *saba; KWEGU šu:bo)

935. *t'á:y   "to tear off, tear out; to extract incisor tooth"

Koman: UDUK c'é "to peel cooked vegetables, to shell beans, peanuts, to take out seeds'

KUNAMA taia- "to take meat off, deflesh"

KUNAMA taimala "apart, separated"

[stem plus NS *m adj. suff. plus NS *l adj. suff.]

Sah: KANURI sàyá "to wash away, erode" (H)

[stem plus NS *-a dispunc.]

Kir-Abb: GAAM ṭíiá "incisor tooth"

[stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO cäy "to split (intr.)"

Rub: Ik ts'ɛ "part of a skin; leather"

[probably stem plus NS *-Vh n. suff.; semantics: "to tear off" > "to skin" > n. for "skin removed from animal"]

The Gaam noun reflex of this verb root together with the evidence of the derived noun root 936, *t'á:ym "incisor tooth," show that an additional, specialized use of the verb to describe the social custom of extracting the lower incisor teeth of adolescents had come into being by no later than the Northern Sudanic period.

936. *t'á:ym   "incisor tooth"   [root 935 plus *m n. suff.]

KUNAMA taima, teima "incisor tooth"

Sah: Bodelean [*téimè "incisor tooth": KANURI tímì "incisor, front tooth, tooth"; TEDA tome, DAZA tei "tooth": LOAN from language in which NS *t' > t (Songay-related? For?)]

The immense geographical separation of the Kunama and Saharan subbranches rules out a Saharan borrowing of this noun from Kunama. The nearest languages with /t/ as the regular reflex of PNS *t', and thus the likeliest candidates as the source of the Saharan borrowing, are For and Songay, both of which, from evidence presented elsewhere in the Etymological Dictionary, can be shown to have had ancient areal contacts with Saharan tongues. The term is not presently recorded from For or Songay, but since its adoption by the Saharan group lies several thousand years back into the past, the word may well have been used in earlier historical stages of either language. The former existence, thus, of cognate forms of *t'a:ym in coordinate branches of Northern Sudanic, directly present in Kunama and indirectly implied for the Sahelian group by the Saharan borrowed reflex, would require the reconstruction of this root back to the Northern Sudanic stage.

937. *t'é:, *t'é:m   "ear; leaf"

Koman: Sn Koman *c'é "ear; leaf" (UDUK c'é "ear"; OPO c'ia "ear; leaf"; KWAMA ts'e- "ear; leaf")

Koman: UDUK c'émèn "leaf"

[2nd stem plus NS *n n. suff.]

Koman: GUMUZ *ts'e- "ear"

Koman: GUMUZ *ts'enja "leaf" (-ja "tree")

[*ts'e-n-ja, compound with epenthetic *-n-, literally "ear of tree"]

Sah: Bodelean *sim- "ear" (KANURI sɔ́mɔ̀; TEDA šii, šimi, PL. šima, DAZA ši)

Astab: NARA sem "grass" (R)

Kir-Abb: SNil: DATOGA sé:ndò:dà, PL. se:ŋga "leaf" (stem *se:N- < SNil *ce:N-)

[2nd stem *t'e:m > PSNil *ce:m plus SNil 2ndary sing. suff. *t and plus 2ndary pl. suff. *k > *ce:nto:ta, PL. *ce:nk-, with regular PSNil *c > DATOGA s, *t > d, and *k > g]

The semantic linkage of "ear" and "leaf" is a recurrent one in Nilo-Saharan. It is an association that may originally have gained currency through a folk etymologization of the chance resemblance of separate words used for the two meanings. This solution is supported by the presence here of two reconstructed shapes, *t'e: and t'e:m, as well as two meanings. Judging from the Uduk attestations and the balance of outcomes outside the Koman group, the shorter root shape originally had the meaning "ear," and the longer shape the meaning "leaf." But the semantic association was long-lived (see roots 44, 1360, and 1496 for other recrudescences of the linkage). A proposed history of the main early root words for "ear" in Nilo-Saharan is discussed under root 44. The presence of the meaning "ear" in the Bodelean reflexes of t'e:m are best understood as a resurfacing of the ear/leaf meaning connection within that particular group, since the earlier proto-Saharan word for "ear" was a reflex of *be:h (see root 44).

938. *t'e:kʰ OR *t'e:k'   "to call out"

CSud: ECS *t'i OR *ti "to call to"

KUNAMA šiki- "to make a noise"

Sah: KANURI ség "ideophone of crying or sobbing"

Astab: NARA šek "to accuse"

Kir-Abb: GAAM ʈɛɛn- "to advise, reproach, scold"   [stem plus NS *n dur.]

Kir-Abb: Nil: WNil: OCOLO cɛk "to advise, command, charge, counsel, promise"

Eastern Sahelian semantic innovation: shift of application from a more general calling out to a declaiming about what should be done or has been done.

939. *ʈ'èl   "to slip, slide"

CSud: MM: LUGBARA kètrèkètrè "slidingly"   [NS *kʰ n./adj. pref. plus stem redup.]

Sah: KANURI sə̀lɩ̀ddó "slipperiness"   [probable earlier *səlirto or *səlilto, stem plus NS *r or *l iter. plus NS *tʰ or *ʈ n./adj. deriv. suff.]

SONGAY tèlènsì "to slip, slide"   [stem plus NS *n dur. plus NS *s prog. plus *-i itive]

Kir-Abb: Nil: ENil: TESO [-jelɛlar "to slip, slide": LOAN (expected *-cel-), probably from early Bari or from WnRub (NS *c > WnRub *'j)]   [stem partially redup. plus ENil itive]

Kir-Abb: Nil: ENil: BARI jɛlɛd-dya "to slip"   [stem plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI lojɛlɛt "slippery"   [ENil *l- attrib. pref. (NS *l adj. suff.) plus BARI v.]

940. *ʈ'ɛ:ʂ   "sand"

Koman: UDUK àc'éš "earth, ground; down"   [NS *a- n. deriv. pref. plus stem]

CSud: PCS *tseɲa OR *ceɲa "sand"   [stem plus NS *ɲ n. suff.]

KUNAMA šišawa "sand"   [stem plus NS *w n. suff.]

SONGAY tàasì "sand"

Astab: NARA sa:se "sand" (Bender 1971)

Kir-Abb: GAAM [sɛsa "sand": LOAN from language in which NS *ʈ' > s or s' and *ɛ > ɛ (Bertha?)]

Kir-Abb: Nil: ENil: BARI [sɛsɛ "sand": LOAN from language in which NS *ʈ' and *ʂ > s]

Kir-Abb: Nil: SNil: DATOGA esɛ:sgwɛ:nda "sand"   [*esɛ:sgue:n-, regular outcome of PSNil *ɛcɛ:cua:n-, consisting of assim. form of NS *a- n. deriv. plus stem plus SNil combined reflex of NS *w and *n n. suff.; -da is SNil 2ndary sing. n. suff.]

941. *ʈ'ì OR *ʈ'ì: "small, young (of child)"

Koman: UDUK àc'í "child"   [NS *a- n. deriv. pref. plus stem]

CSud: PCS *ʈ'i "small, weak"

Kir-Abb: proto-Daju cace, PL. coke "boy"   [stem remnant *c- plus Daju *-ace/*-oke sing./ pl. markers]

Kir-Abb: Nil: PNil *ci "small" (ENil: Ateker *-cici "small"; WNil: NAATH ciwciw "thin")   [Ateker: redup. stem; Naath: stem plus NS *w n./adj. suff., redup.]

Other possible reconstructions: *ʈ'ī OR *ʈ'ī:.

942. *ʈ'í OR *ʈ'í: "stem, stalk, trunk"

CSud: PCS *ʈ'ī "lower trunk, tap root"

KUANAMA ša "sorghum stalk"   [*ši-a, stem plus usual Kunama *-a n. final suff. < *ti-a]

Kir-Abb: C.Jebel *kəca "tree" (AKA kəca, MOLO kəsa, KELO kəja)   [proposed *kə-tya < *kə-ti-ya, NS *kʰ n. pref. plus stem plus NS *'y n. suff. as in Bertha reflex (but without stem redup. seen in Bertha)]

Kir-Abb: BERTHA s'ís'íà "tree, plant"   [redup. stem plus NS *'y n. suff.]

Proposed Jebel semantic cum morphological innovation: meaning "tree," with addition of the Nilo-Saharan *-i'ya noun suffix to the stem and of 'movable k' prefix in the Central Jebel reflexes.

943. *ʈ'íɖ   "to spit through gap of teeth"

SONGAY tírsì "to spit through teeth"

Kir-Abb: West Daju *ced- "to spit" (Nyala, Lagawa)   [stem plus NS *θ intens.)

Kir-Abb: Nil: WNil: OCOLO ciʈ "to spit through teeth"

Rub: IK ts'írít- "to spit through gap of teeth"   [stem plus NS *tʰ cont.]

944. *ʈ'í:l   "to die (of fire), be extinguished"

Koman: UDUK àc'īlāʈ' "dead coals"   [NS *a- n. deriv. pref. plus stem plus NS *ʈ' n. suff.]

KUNAMA ašišilla "soot"   [NS *a- n. deriv. pref. plus partially redup. stem]

Sah: KANURI sílɩ́wú "ideophone of something which has completely cooled"   [/silipu/, stem plus NS *pʰ extend. intens. plus NS *-uh n. deriv. suff.]

Kir-Abb: proto-Daju *cilu "charcoal"   [Thelwall 1981 has *culu, but his evidence best supports *cilu, stem plus probably NS *-uh n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO cil "to darken, dirty, soil"   [semantics: via earlier "to be sooty"]

945. *ʈ'īs   "to sneeze"

Koman: UDUK c'īsáŋ "sneeze (n.)"   [stem plus NS *ŋ n. suff.)

CSud: ECS *ci "to sneeze"

SONGAY tísów "sneeze; to sneeze"   [stem plus NS *w n. suff.; v. < n.]

Kir-Abb: GAAM ʈīsən- "to sneeze"   [stem plus NS *n dur. (as intens.?)]

946. *ʈ'ó:ŋ   "to annoy, harass (verbally)"

KUNAMA tuŋa- "to annoy, bother"

Sah: KANURI sùn "to beg for food"

Sah: KANURI súngòi "to sneer"   [stem plus NS *w punc. plus NS *'y ess.-act.]

SONGAY tòoɲè "to offend someone"   [stem plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)]

947. *ʈ'óŋk   "to bend, curve, turn"

Koman: UDUK c'íŋkíl "to somersault"   [< *c'uŋkil, stem plus NS *l iter. with regressive V assim.]

Sah: KANURI sówór "to turn around, rotate"   [/sógór/, stem plus NS *r iter. added since *ŋk > KANURI k/_#]

Kir-Abb: GAAM ʈòŋál "hook"   [stem plus NS *l n. suff.]

Kir-Abb: Nil: proto-Luo *cuŋ "knee"

948. *ṭ'óp'   "to rot, decay, fall into ruin"

Koman: UDUK c'āpūt^hác'āpūt^h "rotted, spoiled"   [stem plus NS *t^h n. suff., redup. to form adj.]

Kir-Abb: GAAM tóí- "to decay, go bad, become putrid, rot"   [< *tɔwi-, stem plus NS *'y ess.-act.]

Kir-Abb: Daju: LIGURI kojopoŋei "rotten"   [NS *k^h n./adj. pref. plus stem plus NS *ŋ and *y n./adj. suff.]

949. *ṭ'ɔ̄k^h   "to be(come) hot"

Koman: UDUK c'ōk^h màà "to cook food" (màà "food")

CSud: MM: LUGBARA to "to be(come) luke warm"   [LUGBARA t < PCS *t, *ṭ, *t', or *ṭ']

KUNAMA -tok- "to burn"

KUNAMA tokoma "hot"   [stem plus NS *m adj. affix]

FOR tòkké "warm; hot"   [stem plus NS *-eh n./adj. suff.]

Astab: NARA [tok "to be hot": LOAN from Kunama (expected *sok)]

Astab: Nub: DONGOLAWI [tog "to heat, warm": LOAN (expected *tag-)]

Kir-Abb: Nil: WNil: OCOLO cwak "to put fuel in the fire"

The borrowed Dongolawi form of the root and the Ocolo reflex, like that of Uduk of Koman, have transitive applications. The Ocolo and Uduk transitive usages may reflect old areal influences or be another example of the numerous word borrowings in Nilotic from Koman or in Koman from Nilotic.

950. *ṭ'ɔ̄:l   "front of the body, belly"

Koman: UDUK c'ōlē' "intestines"   [stem plus NS *-eh n. deriv. suff.

CSud: WCSud *tro "formerly"   [semantics: "front (of body)" > "before" (in time)]

SONGAY téelí "intestines"   [stem plus probably NS *-ih pl. suff., added since *ɔ(:) > pre-Songay *a(:)]

Astab: Taman: TAMA tɔlɔl, PL. tɔlɛŋ "belly"

Kir-Abb: proto-Daju *kacalbok- "guts"   [NS *k^h n. pref. plus stem in compound with root *bok- of unknown meaning]

Except possibly for the Songay reflex, all the versions of this root that apply to the innards are derived forms, which add derivational suffixes to the stem. For that reason "intestines" would not appear to have been the original meaning of the word, and a meaning closer to that seen in the Tama reflex and implied in the Central Sudanic root is thus the more plausible reconstruction.

951. *ṭ'ɔ́r OR *ṭ'ɔ̄r   "to push"

CSud: MM: LUGBARA ɔ̄trɔ́ "to push up or back"   [CSud *V- pref. plus stem]

KUNAMA doro-, dorko- "to push"   [2nd entry: stem plus NS *k^h iter.]

SONGAY tòrsò "to push ahead with foot or hand"   [stem plus NS *s prog.]

Kir-Abb: Nil: WNil: OCOLO cɔr "to push":

Kir-Abb: Nil: ENil: MAASAI -šɔrɔɔ́ "to brush against"   [stem plus uncertain Maa affixation, perhaps *-a neuter plus *-uh ven.?]

952. *ṭ'úd   "to glimmer, glow"

Sah: KANURI sɔl "heat of sun in early morning or in the afternoon"

Sah: KANURI sɜrsɜrá "to shine"

Astab: NARA asuro "smoke"

Astab: Taman: TAMA tuːrud "smoke"   [redup. stem plus NS *-a dispunc.]
[NS *a- n. deriv. pref. plus stem]
Rub: IK ts'úd "smoke"   [stem plus NSud *ʈ n. suff.]

Eastern Sahelian semantic innovation: shift of the application of the root to the giving off of smoke. Since the nouns, at least in Nara and Tama, show different derivational affixation, it seems probable that the nouns are separate derivations from the underlying verb root; hence the attribution of the innovation to the semantic history of the verb.

953. *ṭ'úːd   "to see up close, see with one's own eyes"

Koman: UDUK c'ūr "to look at self"

Koman: UDUK c 'ūnyc'ūr "to primp or admire oneself"   [redup. stem (as freq.)]

KUNAMA dumma, durma "revelation"   [stem plus NS *m n. suff.]

Sah: KANURI súl, cúl "ideophone of seeing something with one's own eyes"

954. *ṭ'ūk   "to set apart, put apart"

Koman: UDUK c'úk^h "to avoid; to loosen, free, release; to take off clothes"

Sah: KANURI súwúr "to partially knock down"   [< *súgúr, stem plus NS *r iter.; semantics: reference is to repetitious action required in taking apart, e.g., a house]

FOR túgá "side"   [stem plus NS *-ah n. deriv. suff; semantics: from verb in sense "to put off to the side"]

Kir-Abb: GAAM tuun- "to forbid, say no"   [stem plus NS *n dur.]

955. *ṭ'ùl OR *ṭ'ūl   "to clean"

Koman: UDUK c'īlílác'īlíl "clean, of water"   [*c'ulil, stem plus NS *l n./adj. suff., redup. to form adj.]

KUNAMA duli- "to winnow, clean, sift"

FOR tùllé "good, beautiful, attractive, pleasant"   [stem plus NS *-eh n./adj. deriv. suff.]

Kir-Abb: Nil: WNil: NAATH cul "clear water in river or well so one can see the bottom"   [possible Koman semantic influence]

Other possible reconstructions: *ṭ'ùːl OR *ṭ'ūːl.

956. *ṭ'úm   "to chew on slowly"

Koman: UDUK c'úm "to eat sugarcane"

KUNAMA dumme- "to swallow with difficulty"

Kir-Abb: Nil: WNil: NAATH cumcum "sweet, delicious"   [gemin. C₂ as intens.]
[adj. by redup. stem]

Kir-Abb: Nil: WNil: NAATH cuom "to savor"

Kir-Abb: Nil: ENil: BARI jʊm-bu "to attempt, make first steps"   [semantics: "to taste" > "to test," as in etymology of ENGLISH taste, test]

957. *ṭ'úːr   "to go round"

Koman: UDUK c'úr "to stir"

KUNAMA tuntur- "to roll, overturn"

Sah: KANURI súrút "to loop around and tie slip knot"   [redup. stem (*turtur > *tuntur) as freq.]
[stem plus NS *t^h cont.]

Astab: Nub: DILING tur "to spin"

958. *ʈ'wáɗ   "jaw"

FOR tágàm "molar tooth"   [stem plus NS *m n. suff.]

SONGAY tògónò "chin"   [stem plus NS *n n. suff.]

Kir-Abb: GAAM ʈəgəm "chin"   [stem plus NS *m n. suff.]

Kir-Abb: BERTHA [šəgɔrɗe "chin": LOAN (expec-   [stem plus NS *r n. suff. plus BERTHA
ted *s'əg-)]   -ɗe n. suff.]

Kir-Abb: Nyimang *dɔgo "chin" (NYIMANG do,
DINIK dógò)

Kir-Abb: Nil: WNil: OCOLO cwak "throat"

Kir-Abb: Nil: ENil: BARI jɔggi "necklace (of ostrich   [semantics: what is worn around the
egg, etc.)"   throat]

The Ocolo and Bari meanings imply a proto-Nilotic refocussing of the meaning of this root to the
area under the chin, namely, the front of the throat.

959. *ʈ'wâːkʰ OR *ʈ'wāːkʰ   "to rap, tap, peck at"

Koman: UDUK c'wākʰām t'wâ' "to chew" (t'wā   [stem plus NS *m iter. concis.]
"mouth")

CSud: PCS *ʈ'a "to rap, tap, pat"

KUNAMA toko- "to knead; to tan [by kneading]"

KUNAMA tokki- "to beat, knock"   [gemination as freq.]

KUNAMA tokoro- "to strike on the back playfully"   [stem plus NS *r iter.]

FOR toktoge "woodpecker"   [redup. stem as freq. plus NS *-eh n.
                                                           suff.]

Kir-Abb: GAAM ʈɔɔ- "to peck, rap"

Kir-Abb: ENil: BARI jɔk "to pound (with stone)"

Kir-Abb: ENil: BARI jɔg-ga "to stamp (with stamp),
strike (by hand or fist), clap"

Kir-Abb: ENil: BARI jɔkar- kak "to knock down (in   [stem plus ENil itive]
boxing)" (kak "down")

Kir-Abb: ENil: BARI jug-gö "to pound (in mortar)"

960. *ʈ'wâm   "to hand out"

Koman: UDUK c'wām "to lift out of pot anything   [semantics: to dish out cooked food]
boiled"

Sah: KANURI sâm "to distribute, hand out"

961. *ʈ'wéːd   "to scrape or wipe off"

Koman: UDUK c'wár "to blow off by wind
(passive)"

Koman: UDUK c'wár āyìn "to wipe off excess oil
from body" (āyìn "oil")

Sah: KANURI sálá "bald head"   [stem plus NS *y n. deriv. suff., added
                                                           since NS *d > l /_# in Kanuri]

Sah: KANURI sálák "ideophone of quickly and   [stem plus NS *k intens., added since
completely undressing"   NS *d > l /_# in Kanuri]

Kir-Abb: WNil: OCOLO cwɛr "to scrape, as hair off
hide; to scrape the top of ground with hoe or
scraper"

962. *ʈ'wíːʈ'   "to suck"

Sah: KANURI súsún "to suck fruit"   [stem plus NS *n dur. or *ɲ extend.]

Kir-Abb: Nil: WNil: OCOLO cwic "to snuff, draw in
by suction"

Kir-Abb: Nil: SNil: Kalenjin *cuːcuːn "to suck"   [stem plus NS *n dur.]

PRub *c'uc'(ut)- "to suck"   [stem (plus NS *tʰ cont.)]

The Kalenjin and Kanuri reflexes may possibly derive from a parallel reconstructible extended
form of the root, *ʈ'wiːʈ'un, although a shape ʈ'wiːʈ'in or ʈ'wiːʈ'an, with *-Vn or the older and
more usual *-an shape of the durative extension, would be the more probable outcome in suc a
case.

963. *iʈ'   "filth, dirt"

KUNAMA šina "dirt, filth"

Astab: NARA iš "dirt, filth"   [stem plus NS *n n. suff.]

Astab: Taman: SUNGOR iši "excrement"

Kir-Abb: Nil: PWNil *cıɛʈ "dung, excrement"

Kir-Abb: Nil: ENil: TESO a-cin "faeces"   [stem plus NSud *ʈ n. suff. (originally
                                                           added as mass pl. marker?)]

Rub: IK ets' "dung, excrement"   [stem plus NS *n suff. (originally as
                                                           pl.?)]

PROTO-NILO-SAHARAN STEM-INITIAL *k

964. *k-   << demonstrative stem >> (*ki "this"; *ka "that")

Koman: UDUK kīkí' "over there, on this side"   [redup. stem plus NS *-Vh n./adj. deriv.
                                                           suff.]

Koman: GUMUZ *-k- IN *akwa "we"   [*a-k-w-a, stem plus NS *wah 1st per-
                                                           son root (1374) in normative Gumuz
                                                           pron. format *a-STEM-a (see Chap.
                                                           8 for demonstration)]

Koman: GUMUZ *-k- in *aca "you (pl.)"   [*a-kʸ-a < *a-k-i-a, stem *k- plus NS *i
                                                           2nd person marker (root 1600) in
                                                           normative Gumuz pron. format *a-
                                                           STEM-a (see Chap. 8); for same
                                                           regular sound shift, see also root
                                                           978]

CSud: BALESE há "then"   [Balese /h/ < PCS *k]

CSud: WCSud: KRESH ka "that (nearby)"

Sah: DAZA ko "what?"

Sah: ZAGHAWA koː "this"   [probable *kaw, stem plus NS *w n.
                                                           suff.]

FOR ka "what?"   [possible kaːw < ka-u, 2nd stem plus
                                                           NS *-uh ven.?]

FOR ki "who?"

Maban: MABA -gu "the"

Maban: MASALIT igi "this"

Kir-Abb: Nyimang *ki "thing"

Kir-Abb: proto-Daju *ki- "person"   [not attributable to root 410 *ɟi, unless
                                                           this is a borrowing < Hill Nubian]

Kir-Abb: Nil: WNil: proto-Burun *-k- << pronoun
base >> (JUMJUM eka "I"; iki "you (sing.)";   [eka "I" may directly preserve root 1586
etc.)   below, but other pron. are new for-
                                                           mations of base *k plus person
                                                           marking V [*iki "you," base *k plus
                                                           NS *i 2nd person sing., root 1600;
                                                           etc.]

Kir-Abb: Nil: PSNil *aki/*akɛ- "one" (Kalenjin *akɛ "other")

[1st shape: NA a- n. deriv. pref. plus stem *ki-; 2nd shape: < *a-ka-y, with stem *ka plus *y n./adj. suff.]

Kir-Abb: Nil: SNil: POK ki:/*ki:n "this"/"that"

[usual Kalenjin dem. structure: suff. *-n for distant form, presumably < NS *ne dem. root (256)]

Rub: IK ke, PL. ki "that (far off)"

[sing.: probably *kai, stem plus *-i sing. marker; pl.: probable *kih, stem plus *-ih pl. suff. substituted for stem V (see Ik entry in root 235 for same proposed structure]

Rub: IK kɔɔ "there"

[probably *kaw-, stem plus NS *w n./adj. suff.]

A form *ka is attested only for Central Sudanic, with a meaning probably originally of "that (nearby)," as in its Kresh reflex, and arguably for Rub, in the meaning "that (far off)." It has thus been glossed at "that," while *ki is given the gloss "this."

965. *kà OR *ká "with"

Koman: UDUK kā "with, characterized by" (particle introducing adverbial idioms)
Koman: GUMUZ ka "with"
CSud: WCSud: KRESH ka "with, by, of"
SONGAY gà "against, in contact with"

[semantics: as in ENGLISH "with"]

Maban: MABA kan "with (association)"

[expected *gan, however?]

Kir-Abb: Daju: NYALGULGULE ka "and"
Kir-Abb: PNil *ka "with, and" (WNil: OCOLO ka "and"; ENil: Ateker *ka "with," BARI kɔ "with, by means of, against")
Kir-Abb: SNil: NANDI [ak "and": LOAN from Rub (Rub regular metathesis shift in *CV root)]
Rub: Wn Rub [*ka "with": LOAN from ENil (expected PRub *ak)]

966. *kà: OR *ká:h "homestead"

SONGAY gà, PL. gàa "campement nomade; parc à bétail"
Astab: Nub: DONGOLAWI ka: "house"
Kir-Abb: Nil: PSNil *kɑ: "homestead" (suppl. sing.)

The semantic range among the reflexes of this root implies its initial reference, as still today in Kalenjin and indirectly in Songay, to a large extended family homestead of the kind common among later cattle-raising Nilo-Saharan communities, comprising dwellings and livestock areas all surrounded by a thorn fence.

967. *kàn "to move (intr.)"

Koman: GULE kəni "to come"
SONGAY gànà "to follow, decamp, move out, move"
Kir-Abb: GAAM kàn- "to move, escape, take aside"
Kir-Abb: Nil: WNil: NAATH kan "to escape"

Apparent Sahelian innovation: focussing of the action of the verb on moving FROM somewhere and departing for somewhere else. Kir-Abbaian innovation: further narrowing of the verb's action to a more forceful moving away (i.e., escaping).

968. *káp "to grab and take out"

Koman: UDUK kápʰ "to take out (live coals)"
CSud: PCS *gba "to seize, hold fast"
SONGAY gébù "to seize in flight"
Astab: NARA kab "thing, possession"

[stem plus NS *-uh ven.]
[semantics: that which one holds, i.e., possesses]

Kir-Abb: Nil: WNil: OCOLO kap "to steal, take by force"
Kir-Abb: Nil: WNil: NAATH kap "to catch (fish)"
Rub: IK ɪkááb- "to remove bad parts from heap of grains"

[long V is not yet accounted for]

969. *kápʰ OR *ká:pʰ "to fill out, expand, widen (intr.)"

Koman: UDUK kápʰ "to be satisfied with food"

[semantics: as in ENGLISH "full" in sense "sated"]
[stem plus NS *ḷ intr.]

Koman: UDUK kápʰáɗ mò "to be full, of stomach" (mò "finished action")
CSud: PCS *kpa "to be broad"
Sah: KANURI kàwàk (H) "to multiply, increase"
Astab: Nub: DONGOLAWI kawwa "broad, wide"

[stem plus NS *kʰ iter.]
[stem plus NS *-Vh n./adj. deriv. suff.]

970. *ká:p' "lower part of face"

Koman: UDUK kāβaš, kāpāš "chin"
CSud: PCS *kpa "lower part of face"
SONGAY gàgàabè "jaw"
Astab: Nub: KADARU kámṭɔ "cheek"

[stem plus NS *ṣ n. suff.]

[partially redup. stem]
[stem plus NSud *ṭ n. suff.; for Nubian *b (< NS *p', *b, or *ɓ) > Hill Nubian *m /#kV_, see also root 1081]

971. *kátʰ "to tie up"

SONGAY gátà "to hobble horse"
Astab: Nub: DONGOLAWI katt- "to wrap (up), swathe, wind round"
Astab: Nub: NOBIIN kétt- "to tie"

[gemin. as iter.]

Kir-Abb: Nil: WNil: OCOLO kat "to plait"

[structure as in Dongolawi; fronting of stem V is as yet unexplained]

972. *kà'y OR *ká'y "to remember"

Koman: UDUK kā ... ē "to remember" (ē "amid")
KUNAMA kaya "memory"

973. *ke "with, at"

CSud: WCSud *ke "with"
KUNAMA -ke "and, with"

Sah: KANURI -ke- "benefactive, recipient, direction toward"
Sah: DAZA ke: "with"
Astab: NARA ge "from, hither"
Astab: Nub: NOBIIN kén "with something"

[Kunama preserves PNS *e word-final in particles (*e > KUNAMA a /_C)]

Kir-Abb: GAAM -(V)k "in"

[stem plus *n modif. suff. (or dem. root?)]

Kir-Abb: Nil: WNil: NAATH kɛ "with, and, from"
Kir-Abb: Nil: WNil: JYANG ke "with"
Rub: SOO -k (-ik/-uk) "on, in, onto, to (n. suff.)"   [u-/i- possibly reflect old NS directional
                                                        markers *-i/*-uh itive/ven.]

Rub: IK -k(e) << goal case marker >>

974. *ked OR *ker   "to rumble (of stomach)"

SONGAY jérbù "to belch; belch"   [stem plus NS *p extend. plus NS *-uh
                                   ven.]

Kir-Abb: GAAM cɪrg- "to hiccup"   [stem plus NS *kʰ iter. or *k intens.]
Kir-Abb: Nil: WNil: NAATH kir "gas rumbling in
   bowels"

975. *kéːn   "seeds"

Koman: GULE agini "seed"   [NS *a- n. deriv. pref. plus stem]
KUNAMA kina "sorghum"
SONGAY jéení "ear of grain"

Northern Sudanic semantic innovation: narrowing of application of root to collected or cultivated
grains.

976. *kéyk OR *kéyg OR *kéyɟ   "to scrape, scratch"

Koman: Gumuz: KOKIT kʸegut "to wipe"   [stem plus NS *-uh ven. plus *tʰ cont.]
CSud: ECS *kókí "thorn"   [NS *kʰ n. pref. plus CSud *V- pref.
                            (-o- < NS *o- n. deriv. pref.) plus
                            stem *ki < *key-]

Sah: KANURI šík "to scrape off, grate"
Kir-Abb: C.Jebel: AKA kiigi "thorn"   [stem plus NS *-Vh n. deriv. suff.?]
Kir-Abb: Nil: WNil: NAATH kɪk "to scratch"

Other possible reconstructions: *kēyk, *kēyg, or *kēyɟ. The differing derivational morphology
(by addition in Central Sudanic of the Nilo-Saharan *o- attributive noun prefix versus probable
suffixation of *-Vh in Aka) indicates that the Central Sudanic and Jebel nouns for "thorn" were
probably separately derived from this verb root.

977. *kès   "to run"

Sah: KANURI kàs "to run"
SONGAY gàsù "to go fast, go quickly to get some-   [stem plus NS *-uh ven.]
   thing"
Kir-Abb: Nil: WNil: JYANG [kat "to flee": LOAN
   (unattested Koman source: expected *kɛt)]

The particular reconstruction *kɛs was chosen here for the following set of reasons: The Kanuri
outcome allows PNS *ɛ, *ɔ, or *aː as the reconstructed vowel, whereas the Songay reflex rules
out *aː but still allows the other two possibilities. If the reconstruction was *kɔs, the Jyang vowel
remains unaccounted for. If, however, *kɛs is reconstructed, the Jyang vowel can then be ex-
plained as the result of borrowing from Koman, in which PNS *ɔ > *o, but PNS *ɛ regularly be-
came *a. This solution is in keeping with the fact that there are numerous Koman loanwords in
Nilotic and especially in Western Nilotic.

978. *kèy   "face"

Koman: GUMUZ *-c- IN *(ili)ca "eye"   [Gumuz *i(li)- anim. pref. plus *ca <
                                        *ky-a < *ki-a, stem plus Gumuz *a
                                        required n. ending; see root 964
                                        Gumuz 2nd person pronoun, for
                                        same regular sound shift]

CSud: ECS *ke OR k'e "face"

PRub *ik "head" (IK iká-)

[stem plus NS *-ah n. suff., added since
*#CV# > PRub *#VC#]

The consonant *k is reconstructed here, rather than the alternatively possible *kʰ, because this root
is the apparent concrete referent from which root 979, which does require *k, can be semantically
derived.

979. *kèy   "edge, tip"   [probable semantic derivative of root 978]

Sah: KANURI cî "frontier, edge; bank"
FOR nìnáŋ, PL. kìnà "borderline between fields"   [stem plus NS *n n. suff. plus NS *-ah
                                                    n. deriv. suff.; old sing. *kinah was
                                                    then reanalyzied as a pl. beginning in
                                                    usual For *k- pl. marker, and a new
                                                    sing. was then derived from it by
                                                    substitution of FOR n- sing. pref.
                                                    for original initial *k]

SONGAY jíndè "on the edge of"   [stem plus NS *n n. suff. plus NSud *t
                                  n./adj. suff.]

Astab: Nub: DONGOLAWI kinisse "thorn"   [stem plus NS *n n. suff. plus NS *s n.
                                          suff.; semantics: "edge" > "sharp
                                          point" > "thorn"; cf. deriv. of ENG-
                                          LISH "edge"]

Sahelian morphological innovation: The addition of the NS *n noun suffix, without apparently
significantly altering the meaning of the root, is attested in the Songay, For, and Astaboran re-
flexes, but not in the Saharan (Kanuri) form.

980. *kéynàh   "front edge of anything"   [root 979 plus NS *n and *-ah n. suff.]

SONGAY jínà "first, foremost; in front, at first"
Astab: NARA kɪna "breast" (Reinisch: kena)
Kir-Abb: Surmic: S.Surmic: ZILMAMU kɛɛna
   "belly"
Kir-Abb: Nil: WNil: OCOLO këëno "gall, gall blad-
   der"
Kir-Abb: Nil: PENil *-kínà "breast" (suppl. sing.)
Kir-Abb: Nil: PSNil *kɪːna "breast"

Root of 978/979 in derived Sahelian shape *kɛyn-, plus NS *-ah noun suffix. Eastern Sudanic
semantic innovation: narrowing of the meaning of the root to the front side of the body and, more
specifically, probably to the chest. The use of this root in Nara and two Nilotic branches in the
meaning "breast" must be considered independent narrowings of the more inclusive sense "chest."
The evidence of Western Nilotic shows the proto-Nilotic meaning to have not been "breast," and in
any case a different, clearly general Eastern Sudanic root for "breast" also exists (see root 222).

981. kí   "with, by, by means of"

Koman: UDUK kí "by, for the sake of"
CSud: WCSud: BAGIRMI -ki << locative ("to,
   at") >>
KUNAMA -kin "from"

[stem plus *-n suff. of uncertain origin,
but possibly < NS *-ni associative
case (Chap. 7); see Maba entry and
roots 965 and 973 for other *-n suff.
in postpositions in Nobiin and Maba]

FOR kí "with"
Maban: MABA -gin << locative ("to") >>

NARA gi "at, with, for"   [see Kunama entry for possible explana-
                            tion of *-n. suff.]
Kir-Abb: GAAM -ik "to" (locative)

Kir-Abb: Surmic: DM: DIDINGA ki "with"
Kir-Abb: Nil: WNil: OCOLO kǐ "with, and"
Kir-Abb: Nil: PENil *-Vkin << benefactive suff. of   [stem plus *-n suff. of uncertain origin,
v. >>   but see Maba and Kunama entries]
Rub: IK -k(ı) << benefactive case suff. >>

982. *kíʈ   "to tremble"

KUNAMA kidi-, kididi-, kidiki- "to start, tremble,   [2nd entry: partially redup. stem as iter.;
   take fright"   3rd entry: stem plus NS *kʰ iter.]
Sah: KANURI kə́kə́t "to have fit, convulsions"   [partially redup. stem as iter.]
FOR kit- "to tremble"
SONGAY jígírí "to tremble, shiver"   [partially redup. stem as iter.]
Kir-Abb: Nil: ENil: BARI kisig-gö "to shake to and   [< *kitik-, stem plus NS *kʰ iter.]
   fro"
Rub: IK kíʈ- "to shiver, tremble"

983. *kób OR *kóp   "to utter"

CSud: PCS *gbo "to make noise or sound"
KUNAMA kabaro- "to tell"   [stem plus NS *r iter.]
KUNAMA [koboro- "to make noise of small thing   [stem plus NS *r iter.]
   inside rattling": LOAN (< Nara? Expected *kab-)]
KUNAMA [kobokko- "to make noise, sound":   [stem plus NS *kʰ iter.]
   LOAN (< Nara? Expected *kab-)]
Kir-Abb: Nil: WNil: OCOLO kop "to say, speak, tell"

984. *kōd   "to be thin"

Koman: UDUK kōrákōr "thin"   [adj. by redup. stem]
Sah: KANURI kólkòl "little"   [redup. stem]
Sah: KANURI kórí "short (only of man, mocking   [stem plus NS *-eh n./adj. deriv. suff.;
   sense)"   for *-eh > i /_# in Kanuri, see also
    root 24]
Sah: DAZA, TEDA kore "small"   [stem plus NS *-eh n./adj. deriv. suff.]
Astab: Taman: TAMA kərey "light(weight)"   [stem plus NS *y n./adj. deriv. suff.]
Kir-Abb: Nil: WNil: JYANG kor "small"
Rub: SOO kod "to be thin"

985. *kóɗ   "to join, put together"

Koman: UDUK kóɗ "to pile (as fish or rats)"
KUNAMA karama "bundle"   [stem plus NS *m n. suff.]
Sah: KANURI kə́l "to join, add to"
Kir-Abb: Nil: ENil: TESO -kədakın "to link, join"   [stem plus ENil benef.]

986. *kògēr   "hyena"

Maban: MABA gugrek, PL. gugertu "Cynhyene"
Rub: SOO koíi, PL. kogré "spotted hyena"   [*koii < *kogiri]

987. *kókʰ, *kòkʰ   "to knock, tap, hit repeatedly"

Koman: UDUK kókʰ "to feel road, as blind person"
   (i.e., tapping road with stick)
KUNAMA kakko- "to break, smash, pound"   [geminated final C as intens.]
Sah: KANURI kōk "to pick at " (of bird)
Sah: KANURI kók "ideophone of pecking"

SONGAY gókò "to knock on hard surface with bent
   fingers"
Astab: Nub: DONGOLAWI kokk- "to knock"
Kir-Abb: Nil: WNil: OCOLO kɔk "to hew a second
   time"
Rub: IK ikok- "to beat bone (to get out marrow)"   [*i- v. class pref. plus stem]

988. *kól   "to be round, to curve"

Koman: UDUK kól "to be curved"
Sah: KANURI kóló "to swing round, spin"   [stem plus NS *w punc.(?)]
Astab: Nub: DONGOLAWI kolɛ "waterwheel"   [stem plus NS *y n. deriv. suff.]
Kir-Abb: GAAM kólɔ́d, PL. kólg "egg"   [semantics: from egg's round shape]
Kir-Abb: BERTHA húhúlú "egg"   [partially redup. stem plus NS *-uh n.
    suff.; shared innovation with Gaam]
Kir-Abb: BERTHA [gɔ́lí "crooked"; àgó:gólé   [2nd word: NS *a- n./adj. deriv. pref.
   "round": LOANS from language in which NS *k   plus partially redup. stem]
   > g, or borrowed after *k > BERTHA /h/]
Kir-Abb: proto-Daju *kolɔŋ- "to turn"   [stem pluis NS *ŋ punc.]
Kir-Abb: Daju: NYALA kleŋ "round"   [stem plus NS *ŋ n./adj. suff.]
Kir-Abb: Nil: WNil: JYANG kol "wheel"
Kir-Abb: ENil: BARI lokolo' "curved"   [*lo-kolol, ENil adj. pref. *IV-, plus
    partially redup. stem; *l /_# > BARI
    ']

Innovation attesting Jebel branch of Kir-Abbaian: derivation of noun for "egg" from this root.

989. *kònʈ   "to wind (tr.)"

Koman: UDUK kōʈʰ "bundle (of pumpkins, sesame,
   peanuts, etc.)"
Koman: UDUK kōʈʰ mēɗ "to hug, embrace" (mēɗ
   "hand")
Koman: UDUK kōnʈōlákōnʈōl "entangled"   [adj. by redup. stem plus NS *l n./adj.
    suff.]
CSud: WCSud: KENGA kóokò "to roll up"   [CSud *k- pluract./intens. pref. plus
    CSud *V- pref. plus stem *-ko]
SONGAY góndì "snake"   [stem plus NS *-ih n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO [kot "to wrap up":
   LOAN from language in which *ʈ > *t]

990. *kɔ̄   "to call out"

Koman: UDUK kō kī jàbùʈ' "to cry with tears" (kī
   "with"; jàbùʈ' "tear")
FOR kom "to cry"   [stem plus NS *m iter. concis.]
SONGAY gàan "to dance"   [stem plus NS *n dur.]
SONGAY gàani "dance"   [v. plus NS *-ih n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO kwan "solo singer,   [stem plus NS *n dur.]
   song leader"
Rub: SOO kɔnɛθ "to sing"   [stem plus SOO -ɛθ ext. (NS *s prog.]

Trans-Sahel semantic cum morphological innovation: *kɔ̄an "to sing" (> Songay "dance"), by
addition of Nilo-Saharan *n durative to the stem.

991. *kɔ̀dɔ́h   "monkey"

FOR kòró "kind of monkey"

Maban: MABA gɔruk "monkey"　　　　　　　　　[-k is Maba n. sing. suff.]

Kir-Abb: Daju: NYALA [koro "monkey": LOAN <
For (expected *kodo)]

Kir-Abb: Nil: ENil: MAASAI ɔl-kɔrɔi "Colobus
monkey"　　　　　　　　　　　　　　　　[structure as in Kalenjin reflex: probable
　　　　　　　　　　　　　　　　　　　　LOAN from Kalenjin]

Kir-Abb: Nil: SNil: Kalenjin *kɔrɔy "Colobus mon-
key"　　　　　　　　　　　　　　　　　　[stem plus NS *y n. suff.]

992. *kɔːwɔn　　"elephant"

CSud: ECS *kwɔ "elephant"

SAH: TIBU *kuwun "elephant"

Reconstruction of *k rather than *kʰ is required to account for the outcome *g in proto-Chadic
*g-w-n elephant," a borrowing of this root presumably from an ancient Songay-related language
(the Songay reflex of Nilo-Saharan *k being /g/).

993. *kuː　　"palm, sole"

CSud: ECS *ku "arm"

Sah: KANURI [úgù "five": LOAN on distributional　　[except in Kanuri, the Saharan branch's
grounds from Songay-related language]　　　　term for "five" is universally *pwe]

SONGAY ìggú "five"　　　　　　　　　　　[semantics: "palm" > "hand" > "five"
　　　　　　　　　　　　　　　　　　　　(i.e., fingers)]

Kir-Abb: BERTHA (M) hù, (F) hɔ "foot"

994. *kúl OR *kúl̪　　"well, waterhole"

Maban: MABA gulek, PL. gulesi "well"

Astab: Taman: TAMA kúl "well, spring"

Astab: Nub: KADARU kúʀ "well"

Rub: SOO kul "deep rock pool"

995. *kúːl　　"to go around"

Koman: UDUK kúl . . . ìs "to go around, back and
forth" (ìs REFL.)

CSud: ECS *ku "homestead"　　　　　　　　[semantics: as for proto-Luo root below]

Sah: KANURI kùlùm "ring"　　　　　　　　[stem plus NS *m n. suff.]

Astab: Nub: DONGOLAWI kulal "ring"　　　[stem plus NS *l or *l̪ n. suff.]

Kir-Abb: Daju: LIGURI kuggul "round"　　　[partially redup. stem]

Kir-Abb: Nil: proto-Luo *kul "enclosure"　　[i.e., something surrounded by a fence]

996. *kúm　　"to bend over, bend down (intr.)"

Koman: UDUK kúm "to fall, of tree"

KUNAMA kummu- "to bend, bow, stoop, be
curved"

Sah: KANURI kɜ̀mɜ̀s "to wrinkle up"　　　　[stem plus NS *θ intens. or *t̪' iter. in-
　　　　　　　　　　　　　　　　　　　　tens.; semantics: wrinkled surface
　　　　　　　　　　　　　　　　　　　　consists of many bends and creases]

Sah: KANURI [gɜ̀mɜ̀k "to bend, dent in": LOAN　[stem plus NS *k caus.]
from Songay-related language (g for expected *k)]

SONGAY gúmgúm "to go bent over"　　　　[redup. stem as iter.]

SONGAY gúŋgúm "to bend over"　　　　　[redup. stem, with velar assim. of 1st
　　　　　　　　　　　　　　　　　　　　*m]

Astab: Nub: DONGOLAWI kumund- "elbow"　[stem plus NS *n dur. or *n n. or adj.
　　　　　　　　　　　　　　　　　　　　suff. plus NS *tʰ or *t̪ n. suff.]

Rub: IK komos "buttock"

　　　　　　　　　　　　　　　　　　　[stem plus NS *s n. suff.; *u > IK o
　　　　　　　　　　　　　　　　　　　/k_m, as also in root 998]

997. *kúm　　"to cover"

Koman: UDUK kúm k'úpʰ "to cover" (k'úpʰ
"direction toward")

CSud: MM: LUGBARA aku "to shut, cover with"　[CSud *V- pref. plus stem]

CSud: MM: LUGBARA akú "to cover over, con-
ceal"　　　　　　　　　　　　　　　　　[CSud *V- pref. plus stem]

KUNAMA kum- "to cover"

Sah: KANURI kɜ́m "to shut, clench"

Sah: KANURI kɜ́mɜ́s "to squeeze, wring hands"　[stem plus NS *θ intens. or *t̪' iter. in-
　　　　　　　　　　　　　　　　　　　　tens.]

SONGAY gúm "to hide something in a container"

Kir-Abb: GAAM kumur- "to cover"　　　　[stem plus NS *r iter. (as dur.?) or plus
　　　　　　　　　　　　　　　　　　　　*r n. suff. ("cover") with v. as back-
　　　　　　　　　　　　　　　　　　　　formation < earlier n.]

Kir-Abb: Nil: PWNil *kum "to cover"

998. *kum　　"to be much, many"

Koman: KWAMA kukum "all"　　　　　　　[partially redup. stem]

KUNAMA -kummu << augmentative suffix >>

SONGAY gúmɔ́ "very (much)" (ideophone)

Kir-Abb: Nil: ENil: MAASAI -kumok "many"　[stem plus NS *k adj. suff. or *kʰ pl.]

Rub: IK kom- "to be numerous"　　　　　　[*u > IK o /k_m as in root 996]

Rub: IK komat "many"　　　　　　　　　[v. plus NS *tʰ adj. suff.]

999. *kwá OR *kwa̋　　"large carnivore"

Koman: UDUK àkwá "leopard"

Astab: Nub: DONGOLAWI ko: "lion"　　　[NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: PWNil *kwac "leopard"　　　[stem plus NS *tʰ n. suff.]

1000. *kwɛl̪　　"small fly, gnat"

Maban: MABA agelek, PL. agelesi "mosquito"

Astab: Nub: DONGOLAWI kult- "fly"　　　[NS *a- n. deriv. pref. plus stem]

Kir-Abb: BERTHA hɔrɔ́ŋ "fly"　　　　　　[stem plus NS *tʰ n. suff.]

Kir-Abb: NYIMANG kwélèŋ "fly"　　　　[stem plus NS *ŋ n. suff.]

Kir-Abb: Surmic: S.Surmic *kwirɔŋ (?) "fly" (MUR-
SI kirɔŋoi, KWEGU kɔrɔŋa; MURLE kirɔɲit)　[stem plus NS *ŋ n. suff.]
　　　　　　　　　　　　　　　　　　　[stem plus NS *ŋ n. suff.; NS *l̪ >
Kir-Abb: PNil *kwɛlʸɔːŋ "fly" (WNil: proto-Luo　Surmic *L > S.Surmic *r]
*lwaŋ; PENil *-kɔjɔŋ; SNil *kolʸɔːŋ [Kalenjin　[stem plus NS *ŋ n. suff.; Luo shape
*kalia(ː)ŋ-; Datoga *gašɛːŋ-])　　　　　　shows regular PWNil deletion of
　　　　　　　　　　　　　　　　　　　　*kV- /#__CVC]

Probable separate innovation of the meaning "fly" in general took place in Nubian and Kir-Ab-
baian, since distinct morphological modifications appear in each. Kir-Abbaian morphological in-
novation: addition of NS *ŋ noun suffix to the stem (*kwɛl̪ɔːŋ). An older Nilo-Saharan root for
"fly" was preserved in proto-Kir-Abbaian alongside *kwɛl̪ɔːŋ, for which see root 555).

1001. *akɔ́, kɔ́　　"breast"

Koman: UDUK àkɔ́ "breast"

Koman: KOMO ko "breast"

Koman: OPO kue "breast"

　　　　　　　　　　　　　　　　　　　[stem plus NS *y n. suff. (?)]

KUNAMA kuta "breast"   [stem plus NS *tʰ n. suff., with V lengthening (ko-ota)]

SONGAY gánà "breast"   [stem plus NS *n n. suff.]

SONGAY gàndè "chest"   [Songay "breast" plus NSud *t̪ n. suff.]

Maban: proto-Maban *akun "breast" (MABA aŋun, PL. aŋuni; RUNGA aŋgun; MIMI akun)   [stem plus NS *n n. suff; regular NS *k > pre-Maba *g (> *ŋg > *ŋ /V_Vn); MIMI retains NS *k as /k/]

Astab: PNub *oko "chest" (NOBIIN óg, KADERU ɔ́kɔ́, DONGOLAWI og)   [regressive V assim.: *ako > *oko]

Kir-Abb: Nil: WNil: OCOLO ko, PL. kot̪ "chest"

Eastern Sahelian semantic innovation: shift of meaning from woman's breast to chest in general. Its replacement for "breast" in Eastern Sahelian was *id (root 221).

1002. *ɔ́k   "bone"

SONGAY gá, PL. gáŋà "body"   [tone outcome requires < *ɔkah, stem plus NS *-Vh n. suff.; semantics: "bones" > "skeleton" > "body"]

SONGAY gámè "trunk of body"   [stem plus NS *m n. suff.; semantics: see preceding entry]

PRub *ɔk "bone" (IK ɔk)

PROTO-NILO-SAHARAN STEM-INITIAL *kʰ

1003. *kʰàɓ OR *kʰà:ɓ   "seed"

Koman: UDUK kʰáɓány, àkʰáɓány "seed"   [(NS *a- n.deriv. pref. plus) stem plus NS *ɲ n. suff.]

CSud: PCS *kpa "seed"

Kir-Abb: Nil: WNil: BURUN kab "seed"

Other possible reconstructions: *kʰàɓ OR *kʰà:ɓ.

1004. *kʰád   "to split (intr.)"

Koman: UDUK kʰár "to fork (of road, tree); forked stick"

CSud: PCS *aka "to break (pot, etc.)"   [CSud V- pref. plus stem]

Sah: KANURI kál "to break hard thing surrounded by shell"

FOR karr- "to split"

SONGAY kárú "to hit, smack, punish"   [stem plus NS *-uh ven.]

SONGAY kár-kárú "to hammer"   [redup. of 1st entry]

Astab: NARA katta, PL. katata "hatchet"   [*kad-ta, stem plus NS *tʰ n. suff.; pl.: sing. plus NARA -ta pl. suff.]

Kir-Abb: Nil: WNil: OCOLO [kaar "to branch off": LOAN from Koman]

Rub: SOO kád "to cut wood, chop"

Rub: SOO kádat "to split"   [stem plus SOO -at- hab. (NS *tʰ cont.)]

Saharo-Sahelian semantic innovation: shift to transitive sense and to the splitting of hard objects by hitting. Songay shows a further shift of its own in semantic focus, from the result, splitting, to the act of hitting in and of itself. Eastern Sudanic semantic innovation: narrowing of meaning of simple verb to splitting with an ax or similar instrument.

1005. *kʰá:d   "to frown, look angry"

Koman: UDUK kʰárīnyā "frown"

Sah: KANURI kàkkàl "to annoy"   [stem plus NS *ɲ n. suff.]

SONGAY kàarù "to be mad"   [redup. stem (as freq.)] [stem plus NS *-uh ven.]

1006. *kʰàh   "to rise"

Koman: UDUK kʰà' "to ferment, of beer"

KUNAMA k- "to carry, bring"

FOR kair- "to stop (intr.)"   [stem plus NS *r iter. > dur., i.e., stay standing, hence "to stop"]

SONGAY kà "to remove, lift off"   [underlying *kaha, stem plus NS *-a dispunc., would explain low tone: *kàh > ká, plus *-a > *kà]

Maban: MABA kàdàw- "to load"   [stem plus NS *t̪ caus. plus NS *w punc.]

Kir-Abb: BERTHA hà- "to mount, ride, go up"   [stem plus NS *tʰ cont.]

Kir-Abb: BERTHA háθ- "to rise, get up"   [*i- v. class pref. plus C remnant of stem]

Kir-Abb: Nil: ENil: MAASAI -ɪk "to suspend"   [*i v. class pref. plus stem]

PRub *ɪkah- "to stand up, get up"

Northern Sudanic semantic innovation: The development of a coexisting transitive sense for this root is widely attested (in Kunama, Songay, and Maasai). Overt morphological marking of this meaning is not present, *unless* in the form of a shift of the verb into the postulated transitive verb Class II, originally marked by a prefix *i-, a marker which is still evident on the surface in the Maasai and Rub reflexes (see Chapter 5). The proto-Rub reflex was, however, intransitive.

1007. *kʰà:kʰ   "to grow (of plant)" [proposed < *kʰàh-kʰ, root 1006 plus NS *kʰ iter.]

CSud: PCS *ka "to bear fruit, ripen, mature, grow up"

Rub: IK kak (kaká-) "leaf (coll.)"   [stem plus NS *-Vh n. deriv. suff.]

Possible alternate reconstructions, if the derivation proposed here is not correct, are *kʰàkʰ, *kʰàk, and *kʰà:k.

1008. *kʰál   "to sip, sniff, taste"

Koman: UDUK kʰál "to give an odor, smell"

KUNAMA -kal- "to lick, lap"   [tr. > intr. sense]

Astab: NARA kal "to eat"

Astab: Nub: DONGOLAWI kal "to eat, take food, bite (of insect)"

Kir-Abb: GAAM kə́lád, PL. kə́lá‡g "tongue"   [stem plus NS *-ah n. deriv. suff. plus NS *‡ or *t̪/*t̪' n. suff.]

Kir-Abb: C.Jebel: AKA kala, MOLO, KELO kəla "tongue"   [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: BERTHA (M) hàlà, (F) hàlè' "tongue"   [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: PENil *kélá-/*kálá- "tooth"   [stem plus NS *-ah n.deriv. suff.; NOT cognate with PSNil *kɛːlʲ- "tooth," which would > PENil *kɛj-]

Astaboran semantic innovation: shift of meaning of verb to "to eat." Kir-Abbaian innovation: derivation of a noun for probably "inside of the mouth" by addition of the Nilo-Saharan *-ah noun deriving suffix to the verb root. Jebel semantic innovation: narrowing of the meaning of the noun to "tongue." The Eastern Nilotic reflex in both its innovation of the meaning "teeth" and its alternate stem vowel *ɛ (Vossen 1982 reconstructs PENil *e) probably reflects the influence of the closely resemblant proto-Nilotic root *kʰɛːl̪ (1021 below) "tooth."

1009. *kʰá̰l "to shout, call out"

CSud: PCS *ka OR *k'a "to call out"

KUNAMA kal- "to slander"

Sah: KANURI kə̀lə́là "noise" [stem partially redup. as iter, plus NS *-Vh n. deriv. suff.]

SONGAY kálmì "to demand, complain, denounce, accuse; denunciation" [stem plus NS *m n. suff., with v. < n.]

Kir-Abb: BERTHA (M) hár-, (F) hɛ̀:r- "to sing" [Bertha (F) ɛː < *a occurs elsewhere, but environment of shift is uncertain]

Kunama and Songay show a common narrowing of the root to negative calling out.

1010. *kʰá̰m "to become little, few"

KUNAMA kamata "insufficient, short (of clothing, cloth, etc.)" [stem plus NS *tʰ n./adj. suff.]

SONGAY kàmî "to contract, shrink" [stem plus NS *'y ess.-act.]

1011. *kʰámp "to press together"

Koman: UDUK kʰám "to bunch (as grain)"

Koman: UDUK kʰám . . . p'én "to splice" (p'én down")

CSud: ECS *kpa "to press"

CSud: MM: LUGBARA èkpà "tweezers" [CSud *V- pref. plus stem]

Sah: KANURI káp "ideophone of exactness of fit (e.g., of shoe)"

SONGAY kàmbù "pincers, tweezers" [stem plus NS *-uh n. deriv. suff.]

Kir-Abb: Nil: WNil: NAATH [kap "forceps, pliers": LOAN from NS language in which *mp > *p (not Koman)]

Kir-Abb: ENil: TESO -kamakın "to clip together' [stem plus Ateker benef.]

Kir-Abb: ENil: TESO -kamʊn "to catch" [stem plus ENil ven.]

Rub: IK [ıkamɛt- "to catch": LOAN from Ateker (expected *kab-)]

1012. *kʰán "to lap up"

KUNAMA kantu "snout" [stem plus NS *tʰ n. suff.]

Sah: KANURI káŋkányì "palate" [stem redup. plus NS *-ih n. deriv. suff.]

Maban: MABA kana, PL. kantu "mouth" [stem plus NS *-Vh n. deriv. suff.]

Maban: MABA kíníŋ(a)- "kosten" [< *kan-iŋ-(a)-, stem plus NS *ŋ punc. (plus NS *-a dispunc.?)]

Kir-Abb: Surmic: SWSurmic *akat- "tongue" [< *aḵant-, NS *a- n. deriv. pref. plus stem plus NS *tʰ n. suff. (with normal Surmic nasal cluster simplification)]

PRub *kán- "to lick"

1013. *kʰá:n "to direct, guide, send"

Koman: UDUK kʰán "to command, order"

KUNAMA kani- "to give very close attention to" [stem plus NS *-i itive?]

Maban: MABA káníy- "to steal" [stem plus NS *-i itive or *'y ess.-act.]

Kir-Abb: Nil: WNil: OCOLO kän "to seize, fasten"

Kir-Abb: Nil: WNil: NAATH kan "to appropriate, save, take, steal"

Kir-Abb: Nil: SNil: Kalenjin *kanap/*kalap "to raise" [stem plus NS *p extend.; confusion with root 1046 explains *n/*l alternance]

Sahelian semantic innovation: shift from sending or conveying in general to taking hold of forcefully (in order to convey away), hence the meanings "take," "seize," and "steal" seen in Maban and Nilotic reflexes. The extended verb in Kalenjin would seem to have been derived at a point when the simple root still had the intermediate meaning of carrying or conveying, or alternatively the meaning can be attributed to confusion with root 1046.

1014. *kʰá:ṣ "to mix"

KUNAMA kašino- "to prepare condiment, to spice meat in stew" [stem plus NS *n n. suff., with underlying n. converted to v. use]

KUNAMA kašikašota "mixture of worthless things" [redup. stem as iter. plus NS *tʰ n. suff.]

SONGAY kàasìmì "mixture" [stem plus NS *m n. suff.]

SONGAY kàasìm "to mix" [back-formation < n. preceding]

Astab: Nub: DONGOLAWI ka:šɛ "to stir (liquid)" [stem plus NS *'y ess./act.]

Astab: Nub: DONGOLAWI kašwarɛ "swirling column of dust" [stem plus NS *w punc. plus NS *r iter. plus NS *y n. suff.; via sense "to stir" seen in underlying DONGOLAWI v.]

Astab: Nub: NOBIIN kàas- "to wind turban" [semantics: "stir" > "wind"]

Kir-Abb: GAAM kàasíd "food of flour and milk" [stem plus NSud *ṭ n. suff.; semantics: mixture of two foods]

1015. *kʰây "to break off, tear off (tr.)"

Koman: OPO kai "to break"

CSud: ECS *kɛ OR *k'ɛ "to tear off"

Sah: KANURI cè, kè "to plow, remove earth"

FOR kauy- "to weed; to skin" [underlying *kayw-, stem plus NS *w punc.? 2nd meaning, "to skin," probably reflects coalescence of For reflexes of this root and 1084]

SONGAY kèyè "to weed field a second time"

Kir-Abb: NYIMANG kài "to chop" [i.e., chop down vegetation in clearing farm]

Kir-Abb: Nil: PWNil *kay "to harvest"

Saharo-Sahelian semantic innovation: specialization of this verb to the kinds of tearing-off and ripping-out practiced in cultivation (cut vegetation with an ax, weeding, harvesting, etc.).

1016. *kʰáy "to cease, come to an end"

Sah: ZAGHAWA kɛ "to sleep"

Astab: Nub: DILING kiŋ "to make, manufacture" [stem plus NS *ŋ punc.; semantics: to finish a task]

Kir-Abb: GAAM cέɛn- "to be absent, completed, finished" [stem plus NS *n dur., here apparently with intr. effect as in several other instances in Gaam]

PRub *kɛ- "to kill" (IK cɛ-; SOO kɛn, NYANG'I cɛn-) [Wn Rub: stem plus NS *n dur.]

PRub *kɛm "to fight" [PRub *kɛ- "to kill" plus NS *m iter. concis.]

Eastern Sahelian semantic innovation: shift of verb from intransitive to transitive application, i.e., from "to end" to "to finish, bring to an end."

1017. **kʰāyìh* "completion" [root 1016 plus NS *-ih n. deriv. suff.]
SONGAY kéỳ "border, end"
Astab: Taman: MERARIT kay "all"
Kir-Abb: GAAM kɔ̀ì "all"

Eastern Sahelian semantic innovation: completion > full complement > all.

1018. **kʰáyn OR *kʰǎyn* "to be little, small"
KUNAMA kennekennema "weak, thin"   [redup. stem plus *m adj affix]
Sah: TEDA kinni "small"   [stem plus NS *-Vh n./adj. deriv. suff.]
SONGAY kèynà "to be small; a little"   [stem plus NS *-ah n./adj. deriv. suff; v. < nom.]
Astab: Nub: DONGOLAWI kinna "small; young"   [stem plus NS *-ah n./adj. deriv. suff.]
Kir-Abb: TEMEIN kikɛnik "small"   [NS *kʰ n./adj. pref. plus stem plus NS *k adj. suff.]

Sahelian innovation: Derivation of an adjective *kʰaynah "little" by addition of the Nilo-Saharan *-ah noun/adjective deriving suffix appears in Songay and Nubian. The Kunama, Teda, and Temein reflexes each show a different derivational affixation and are probably thus independent adjective derivations from the common underlying root.

1019. **kʰéṣ OR *kʰéṬ* "to move circuitously" [*T = ṭ or ṭʰ or ṭ']
Sah: KANURI kɔ̀skɔ̀sá "to wander aimlessly"   [redup. stem (as iter.) plus NS *-a dis-punc.]
SONGAY césú "to take circuitous route, roundabout way"   [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: OCOLO kyec "to evade, dodge"

1020. **kʰēṭ'* "to care for, care about"
Koman: UDUK kʰŏc' . . . ē "to be occupied with, to think about concernedly, to be busy with" (ē "amid")
KUNAMA kati- "to keep, preserve, care for lovingly"
Sah: KANURI císk "to care for"   [stem plus NS *kʰ iter. as dur.]

1021. **kʰè:ḷ OR *kʰē:ḷ* "to open the mouth (to put something in it)"
Koman: UDUK kʰāɗ "to open mouth a little"
KUNAMA kele- "to relish" (in tasting)
Kir-Abb: GAAM célèm- "to put in mouth (e.g., snuff)"   [stem plus NS *m iter. concis.]
Kir-Abb: Nil: PNil *kɛ:lʸ- "tooth" (PWNil *lɛk; PSNil *kɛ:lʸat, PL. *kɛ:lʸ-)   [proposed pre-PWNil *kɛ:lɛk, stem plus NS *k singul., with regular PWNil deletion shift, *C₁V- > Ø /#_CVC, where C₁ = velar]

1022. **kʰéṇṣ* "to scratch, mark by scratching"
CSud: PCS *kɛ OR *k'ɛ "to scratch, mark"
KUNAMA kesi- "to make a small rubbing sound; to strike a match"
SONGAY cénsé "to vaccinate, scarify"
Astab: Nub: DONGOLAWI kaššɛ "finger"   [stem plus NS *y n. deriv. suff; semantics: part of body used for scratching]

Astab: Nub: NOBIIN káss- "bestreichen, glätten, streicheln"

1023. **kʰɛntʰèh* "pubic area"
KUNAMA kenta "part of body between anus and groin"
Sah: KANURI kántì "inner part of thigh"
SONGAY cèntè "pubis"

1024. **kʰép'* "to pare"
CSud: MM: LUGBARA kpèrè "kind of sickle/knife"   [stem plus CSud *-rV n. suff. (NS *r)]
SONGAY cébú "to shave the head"   [stem plus NS *-uh ven.]
Kir-Abb: Nil: WNil: OCOLO kɛp "to decapitate, cut up fine"
Kir-Abb: Nil: PENil *kɛp "to pare" (TESO -kɛp "to chip, circumcise, cut"; BARI kɛb-ba "to pare (a piece of wood")
Rub: IK [ɪcéb "to knock grinding stone" (to roughen edges); "to cut off small strip": LOAN from Ateker (expected *ɓ instead of /b/)]

1025. **kʰé:ṭ* "to alight on, land on, go down onto"
Koman: UDUK kʰácúpíɗ "to alight"   [stem plus NS *-uh ven. plus *p extend. plus NS *ḷ intr.]
KUNAMA ketta- "to cover" (of male animal copulating)
Sah: ZAGHAWA kéd "to fall"
SONGAY késéŋgì "to faint"   [stem plus *ŋ punc. plus NS *k intens. plus NS *-i itive]
Kir-Abb: Nil: WNil: NAATH [kac pɪny "to alight, step down" (pɪny "down"): LOAN from Koman (expected *kɛc)]

1026. **kʰɛ'yèl* "to reckon (number or amount of)"
KUNAMA kel- "to compute"
FOR kiil- "to count"
Kir-Abb: GAAM cèèl- "to measure (grain)"
Kir-Abb: Nil: WNil: OCOLO kil "to do or measure carefully, tell accurately"

1027. **kʰî:* "to utter"
KUNAMA kikki- "scricchiolare, stridere"   [redup. stem as intens. and iter.]
Sah: KANURI šìšì "to enquire about, snoop into"   [redup. stem as iter., i.e., keeping speaking to or asking about]
SONGAY cì "to say, inform"
Kir-Abb: Nil: WNil: OCOLO kic "to mourn for a long time, sorrow for"   [stem plus NS *ṭ' iter. intens.]
Kir-Abb: Nil: WNil: OCOLO kiw "to give the war cry"   [stem plus NS *w punc.]

1028. **ākʰî:, PL. *akʰa* "(inside of) mouth" [NS *a- n. deriv. pref. plus root 1027; pl.: sing. with substitution of NS *-a pl. suffix for stem vowel]
Sah: Bodelean *ki, PL. *ka "mouth" (KANURI cî; DAZA ci, PL. ka)   [regular Saharan deletion of *V /#_CV in n.]

FOR dágí, PL. kàgì "tooth"

[stem plus NS *-ih n. suff. or perhaps plus NS *-ih pl., originally as coll.?]

Astab: Nub: NOBIIN ág "mouth"

PRub *ak "mouth" (IK aká-)

The Nubian root for "mouth," seen in DONGOLAWI agil, DILING ogul, BIRGID agal, etc., is proposed here to not be attributable to this root, contrary to the usual scholarly assumption. The vowel variations suggest a reconstructed shape *agwil, in which case the root can plausibly be derived by prefixation of the *a- attributive to the verb root in 1075. (For another example of this kind of correspondence pattern in Nubian, see root 1477.) The isolated use of *akʰi: for "mouth" only in Nobiin suggests that its earlier Nubian application would not have been to the mouth in general, since *agwil fulfilled that role, and thus supports the reconstruction of some such meaning as "inside of mouth," as the For reflex also implies.

1029. *kʰí', *kʰá   "to come/go"

CSud: ECS *ki "to go"

CSud: ECS *eki "to come"   [CSud *V- pref. plus stem]

Sah: ZAGHAWA ke "to go"   [proposed *kʰai, stem plus NS *-i itive]

SONGAY kà "to come"; also auxiliary verb connoting future action   [underlying *kʰah, < *kʰa plus remnant of NS *-uh ven., explains tone lowering]

Maban: MABA -ka- "to go"

Maban: MABA -kár- "to come"   [2nd stem plus MABA -r- ven.]

Maban: MABA kíyá- "to rove"   [1st stem plus NS *-a dispunc.]

Astab: Nub: NOBIIN ki "to come"

Kir-Abb: BERTHA hí- "to enter"

Kir-Abb: Surmic: DM: MURLE -ka- << future   [2nd stem]
marker of v. >>

Rub: SOO -ko- << future marker of v. >>   [probable *kʰ-o, stem plus NS *o potential aspect marker (see Chap. 7)]

For other CV verbs of motion with variant V, see roots 708, 1289, 1303, 1372, and 1472. The use of the stem shape *kʰa as a future marker may go back to proto-Sahelian, but it may also have been separately innovated in Songay and as a separate areal development in the formerly contiguous Rub and Surmic language groups, as argued in Chapter 7.

1030. *kʰil, *kʰilkʰil   "to tickle; armpit"

Sah: DAZA kilikili "armpit"

FOR kili "armpit"

SONGAY cìlìŋcílìŋ "to tickle"   [stem plus NS *ŋ punc., redup.]

Astab: Nub: DONGOLAWI kilkil "to tickle"

Kir-Abb: Nil: ENil: MAASAI -kilkil "to tickle"

1031. * kʰil   "to make a loud sound"

KUNAMA killi- "to neigh; to trill"

SONGAY cílli "to acclaim, utter (cries of joy)"

Kir-Abb: GAAM cíl "horn (instrument)"   [n. < v. by tone shift (low > mid)?]

Kir-Abb: Nil: WNil: OCOLO kïl "hollow-sounding"

Rub: IK [ɪkɪl- "to make sound made by elephants or rain": LOAN (expected *ɪkɪɬ-)]   [*i- v. class pref.]

1032. *kʰî:l   "to take off"

KUNAMA kili- "to unload, take off saddle, disarm"

Sah: KANURI šìl "to take off skin"

Astab: NARA kil "to take off piece of clothing"

Kir-Abb: Nil: WNil: OCOLO kil "to take the outside off, strip" (e.g., dura stalks)

Saharo-Sahelian semantic innovation: narrowing to stripping of the covering of something.

1033. *kʰíɬíh   "kind of lizard"

Koman: UDUK kʰúŋkʰúṭú' "chameleon"

SONGAY cìtí "gecko"   [partially redup. stem]

1034. *kʰíy   "to smell good"

Koman: UDUK kʰúyákúy "good-smelling"   [adj. by redup.]

Sah: KANURI cící "to perfume with incense"   [redup. stem]

Sah: KANURI kəjí "sweet"   [NS *kʰ n./adj. pref. plus stem]

SONGAY cáán "to be agreeable (to senses or heart), to be sweet, to be stimulated (appetite)"   [*ki-an, stem plus NS *n dur.]

Kir-Abb: GAAM cíin "sweet"   [stem plus NS *n adj. suff.]

Rub: IK cí- "to satisfy"

Saharo-Sahelian semantic innovation: shift from "to smell good" to "to be sweet." That the original application was to smelling is confirmed by the retention of the focus on scent in the Kanuri verb entry above. An additional sense of satisfyingness to the taste appears in the Songay and Ik meanings and may therefore be a Sahelian innovation.

1035. *kʰóɬ   "to curve, go round"

Sah: KANURI kókór "to describe a circle"   [partially redup. stem]

Sah: KANURI kòrkór "circle"   [redup. stem]

SONGAY kólí "to encircle (with arms), to encircle (game)"   [stem plus NS *-i itive]

SONGAY kólkólí "to surround, be sinuous"   [redup. stem plus NS *-i itive]

Kir-Abb: GAAM kuɬur- "to roll, tumble"   [earlier *koɬur-, stem plus NS *r iter.]

Kir-Abb: GAAM kuuri "round"   [GAAM v. plus NS *-ih n./adj. deriv. suff. (with usual deletion of NS *ɬ in this environment)]

Kir-Abb: BERTHA hórhɔs'- "to twist"   [stem plus NS *k caus. (2nd /h/) plus NS *ṭ' iter. intens. (/s'/)]

1036. *kʰóm   "to be thick (of liquid)"

CSud: PCS *ko "to thicken (of liquid), dry up"

SONGAY kòm "to be thick (liquid), be pasty"

Kir-Abb: GAAM kɔɔm "dough"   [probably < *kɔkɔm, partially redup. stem]

1037. *kʰóm   "hump, lump, mound"

Koman: UDUK àhómòṭ' "snail"   [NS *a- n. deriv. pref. plus stem plus NS *ṭ' n. suff.]

Koman: UDUK kʰómó' "scab"   [stem plus NS *-Vh n. deriv. suff.]

SONGAY kòomà "that which has a curved shape or forms a hump; termite hill"   [stem plus NS *-ah n. deriv. suff.]

Astab: DONGOLAWI ko:m "heap, mound"

Kir-Abb: GAAM kūmūg "heaped up"   [< *komug, stem plus NS *k adj. suff.]

Kir-Abb: Nil: WNil: proto-Luo *kuɔm "cow's hump"

1038. *kʰòmból   "outer shoulder"
CSud: ECS *kɔmbɔ "armpit"
Sah: KANURI kə̀mbə́látə́ "shoulder blade, shoul-   [stem plus NS *tʰ n. suff.]
   der of animal"
Kir-Abb: Daju: NYALA kumbul "shoulder"

1039. *kʰónd   "to move (tr.)"
KUNAMA kodoro- "to budge"   [stem plus NS *r iter.]
Sah: KANURI kə́nd- "to bind child on the back for
   the purpose of carrying it"
SONGAY kóndà "to carry away"   [stem plus NS *-a dispunc.]
Astab: Nub: DILING kond- "to be contained in
   something"

Saharo-Sahelian semantic innovation: shift to moving something by carrying it. The Nubian re-
flex shows a further shift, to being held or carried within something else.

1040. *kʰòpʰ   "to hit"
CSud: PCS *kpo "to knock"
SONGAY kófì "to hit on head"   [stem plus NS *-i itive]
Kir-Abb: GAAM kəf- "to slap, smack"
Kir-Abb: Nil: ENil: BARI köpuk- "to hit on (with a   [stem plus NS *k intens.]
   foot)"

1041. *kʰòːr   "to tear off, rip off, cut off"
KUNAMA kurungi- "to strip (intr.)"   [stem plus NS *n dur. plus NS *k in-
                                        tens.]
Sah: KANURI kə́rák "to rip apart, rend" (H)   [stem plus NS *-a dispunc. plus NS *k
                                                intens.]
Sah: KANURI kə́rə́m "to cut off (ear of grain), to   [stem plus NS *m iter. concis.]
   amputate"
SONGAY kórtù, kóttù "to rend, split, incise, cut into   [stem plus NS *tʰ cont. plus NS *-uh
   thongs"   ven.]
Kir-Abb: GAAM kɔrɔm "ax"   [stem plus NS *m n. suff.]

1042. *kʰoseh   "belly"
Koman: UDUK kʰāsíndélàʼ "intestines of eel"   [compound with epenthetic nasal inser-
                                               ted; -délàʼ: UDUK ḏél "shiny" plus
                                               NS *-ah n. deriv. suff.]

KUNAMA kasa "belly"
Sah: DAZA keši "belly"
Maban: MABA kusuk "chest"   [-k is Maba n. sing. suff.]
Kir-Abb: proto-Nyimang *kase "breast"
   (NYIMANG kasì, DINIK kásè)
Rub: NYANG'I kose "stomach"

1043. *kʰót'   "to speak loudly"
Koman: UDUK kʰucūr "to chide, scold, rebuke,   [stem plus NS *r iter.]
   admonish"
KUNAMA kakato- "to slander, accuse, defame"   [stem plus NS *tʰ cont.]
KUNAMA kateke- "to laugh strongly and long with   [stem plus NS *kʰ iter.]
   movements of the chest"
SONGAY kòsòŋgù "to speak with a raised voice or   [stem plus NS *n dur. plus NS *k in-
   with violence"   tens. plus NS *-uh ven.]

Astab: NARA kus "to call, call here"
Kir-Abb: GAAM kə́sá "herald, messenger"   [stem plus NS *-ah n. deriv. suff.]
Kir-Abb: Nil: WNil: OCOLO kwac "to ask for, beg"

1044. *kʰót'   "to stir up, shake"
Koman: UDUK kʰúc' "to mess up"
Koman: UDUK kʰúc'ákʰúc' "messed up"   [adj. by redup. stem]
KUNAMA kati-, kato- "to tremble"
KUNAMA kateke- "to disorder, tangle, upset"   [stem plus NS *kʰ iter.]
SONGAY kùskùsù "to stir up, shake"   [redup. stem plus NS *-uh ven.]
Astab: Taman: TAMA kúcùk- "to shake"   [stem plus NS *kʰ iter.]

1045. *kʰɔk'ɔtʰ   "to cough"
SONGAY kŏtó, kógótò "to cough"
Kir-Abb: GAAM kəəd- "to cough" (*kəgəd-)

1046. *kʰɔl   "to take hold of"
Koman: UDUK kʰál "to carry"
CSud: PCS *kɔ "to catch"
KUNAMA kolu- "to grip"   [stem plus NS *-uh ven.?]
Kir-Abb: PNil [*kalab "to pick up" (ENil: BARI   [ENil, SNil: stem plus NS *p extend.;
   kalab-bu "to clasp"; SNil: Kalenjin *kalap/   confusion with root 1013 explains
   *kanap "to raise"): LOAN from Koman (*a for   SNil *l/*n alternance]
   expected *ɔ)]

1047. *kʰɔːɲ   "shell"
CSud: PCS *kɔ(u) "hard covering, shell"   [stem (plus CS *-u n. suff.)]
KUNAMA kokonya "egg"   [partially redup. stem; semantics: "shell"
                         > "egg" (for other linkages of "egg,"
                         "shell," and "skull," see roots 167
                         and 1458, among others]

SONGAY kóŋkónó "nape, occiput"   [redup. stem]
Kir-Abb: GAAM kə́ɲád, PL. kə́ɲáɫg "back of skull"   [stem plus NSud *ṱ or *ɫ n. suff.]
Kir-Abb: PNil *kuːɲit "brain" (ENil: BARI kunyitat;   [stem plus NSud *ṱ n. suff.]
   SNil: Kalenjin *kuːɲut)

Sahelian semantic innovation: "shell" > "skull" (bony shell of the head) > "occiput, back of the
skull." Kir-Abbaian innovation: addition of North Sudanic *ṱ noun suffix to stem.

1048. *kʰɔŋk   "to stick (into)"
Sah: KANURI kók "to stick, plant"
SONGAY kánjì "to nail, fix, stick in"   [stem plus NS *-i itive, added since *ɔ >
                                          /a/ in Songay]

Kir-Abb: Nil: WNil: OCOLO kuk "to hit the mark"
   (with spear)
Kir-Abb: Nil: WNil: OCOLO [käk "to plant (grain)":
   LOAN from Koman (/ä/ for expected *u or *u)]
PRub *kɔk "to cover, shut, stop up" (IK kɔk-)   [semantics: "stick into" > "plug, stop
                                                  up"; low tone is as yet unexplained]

1049. *kʰɔr   "to arrange, put in order"
Koman: UDUK kʰār ē "straight, accurately, right"
   (ē "amid")
Koman: GULE kɔrɔ- "good"

KUNAMA kori- "to arrange"

Sah: KANURI kárás "to proceed well organized" (H) — [stem plus NS *s prog.]

SONGAY kèrì "to weigh" — [stem plus NS *-i itive added since *o > *a in Songay; then *a > e /_Ci#]

Astab: Taman: TAMA ka:rni "straight" — [stem plus NS *n adj. suff.]

Kir-Abb: C.Jebel: AKA kɔrrɔ "good" — [probable LOAN from Gule-related language]

1050. *kʰɔ̀r "to burn (intr.)"

Koman: UDUK kʰārīnyákʰārīny "burnt-smelling (of feathers)" — [adj. by redup. of stem plus NS *ɲ n./adj. suff.]

KUNAMA kolli- "to shine" — [apparent ll ~ r altern. as in numerous other Kunama cases, but with alternant in /r/ not yet recorded here]

SONGAY kórɔ́ŋ "to be hot, have a fever" — [stem plus NS *ŋ n./adj. suff., with v. < earlier adj.]

Astab: Nub: DONGOLAWI kahart- "warm" — [partially redup. stem (*kakar-) plus NS *tʰ n./adj. suff.]

Astab: Nub: NOBIIN kárj- "to cook" — [stem plus NS *ṣ caus.]

Rub: IK kɔr "fried fat"

Sahelian semantic innovation: A shift from "to burn (intr.)" to "to become hot" is overtly present in the Songay and Dongolawi reflexes and implied in the Nobiin verb "to cook," i.e., "to heat (food)."

1051. *kʰɔ́s "to itch, have a rash"

Koman: UDUK kʰás "to itch"

Koman: UDUK kʰásákʰās "itchy" — [adj. by redup. stem]

SONGAY kàsàmà "mange" — [stem plus NS *m n. suff.]

SONGAY kású "to be rough" — [stem plus NS *-uh n. suff., v. < earlier n. "roughness (of skin or other surface)"]

Kir-Abb: Nil: WNil: OCOLO kwat "to peel off, turn red (of skin)"

1052. *kʰɔ́:ʈ "to rub"

Koman: UDUK kʰūcūr "to work skin with fingers to tan it" — [stem plus NS *r iter.]

CSud: PCS *kɔ OR *k'ɔ "to scratch, scrape"

SONGAY kóosú "to scratch, scrape" — [stem plus NS *-uh ven.]

Kir-Abb: GAAM kɔ́ɔsɔ́ "field (fenced off for cultivation" — [stem plus NS *-Vh n. deriv. suff.; semantics: reference is to field cleared for tillage (implied meaning shift of v. from "scrape (off)" to "clear (the ground)")]

Kir-Abb: Nil: WNil: OCOLO kwac "to scale (fish)"

PRub *kɔc "to scratch" (IK kɔ́ts "scabies"; SOO ıkɔc "to write") — [SOO: *i- v. class pref. plus stem]

Semantic reconstruction chosen here, as intermediate between "to scratch" and "to work with the fingers," implies a Sudanic semantic innovation, of the meaning "to scratch, scrape."

1053. *kʰɔ́ʈ' "to pull off, pull out, pull apart"

Koman: UDUK kʰác' "to break off piece, to dig up or out, to tear down, to uproot"

Sah: KANURI kás "to pull; to wean"

Sah: KANURI kákás "to de-bark tree" (H) — [partially redup. stem as iter.]

Sah: KANURI káskásí "bark; scale (fish, reptile)" — [redup. stem plus NS *-ih or *'y n. deriv. suff.]

SONGAY kósú "to tear out, pull up, pluck off (fruits, greens); to wean" — [stem plus NS *-uh ven.]

SONGAY kokosi "scales, bark" (P) — [partially redup. stem plus NS *-ih or *'y n. suff.]

Kir-Abb: BERTHA hàs'úl- "to take away" — [stem plus NS *l iter. (as intens.?)]

Kir-Abb: DINIK [kwúsıyà "bark": probable LOAN (expected *kɔɟiya)] — [stem plus NS *'y n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO kɔc "to round up, cut out (cattle and sheep)"

Saharo-Sahelian morphological and semantic innovation: derivation of a word for "bark, scales" from the verb (in reduplicated shape in Kanuri and Songay), by addition of the Nilo-Saharan noun-deriving suffix *-i'y.\

1054. *kʰúɓ OR *kʰúɓ "to join, meet up with"

Koman: UDUK *kʰúɓ p'én "to block or cut off from returning" (p'én "down")

Sah: KANURI kə́p "to put and hold together; ideophone of huddling close together in crowded space"

SONGAY kùbèy "to go to meet (someone)" — [stem plus NS *'y ess.-act. (here with incep. implication)]

1055. *kʰúɖ "to turn (tr.)"

CSud: PCS *ku "to turn"

Sah: ZAGHAWA kurru "knee" — [stem plus NS *-Vh n. deriving suff.]

FOR kùrù, PL. kùrŋà "knee" — [stem plus NS *-Vh n. deriv. suff.]

SONGAY kùrbà "to mix by stirring, to twirl porridge; to hide the head" — [stem plus NS *p extend. plus NS *-a dispunc.

Astab: PNub *kurt- "knee" — [stem plus NS *tʰ n. suff.]

Astab: Nub: NOBIIN kùrrì "bent" — [geminated *r probably reflects underlying *kurti, stem plus NS *tʰ n./adj. suff.]

Kir-Abb: NYIMANG kwuɖɛŋ "to bend (tr.)" — [stem plus NS *ŋ punc.]

Kir-Abb: NYIMANG akwɔɖɔ̀ŋ "bent, crooked" — [NS *a- n./adj. deriv. pref. plus Nyimang v. entry preceding]

Kir-Abb: ENil: PEN *-kúɗi- "armpit" — [stem plus NS *-i n. deriv. suff; semantics: place of bending the arm]

Rub: SOO kúdum "to bend over, stoop" — [stem plus NS *m iter. concis.]

Apparent Saharo-Sahelian semantic innovation: A shift from "to turn" to "to bend" is indicated indirectly in derivation of the noun "knee" in For, Zaghawa of Saharan, and Nubian of Eastern Sahelian, and directly in the Eastern Sahelian verbs. But to trace "knee" back to Saharo-Sahelian is suspect, because that noun occurs only in languages formerly spoken in a limited region of the sahel: Zaghawa today is spoken in areas northwest of the For country, while Nubian origins may trace to the northeast of that region at no more that about 3000 years ago (Thelwall 1982). Both the earlier meaning "to turn" (preserved indirectly in the Songay extended verb for "to stir") and the Saharo-Sahelian sense "to bend" for the simple verb stem (seen in the Songay meaning "to hide the head") are reflected in the Songay reflex of this root.

1056. *kʰù:d "to call out, make a loud noise"

CSud: PCS *ku OR *k'u "to call"

KUNAMA kududu- "to thunder" [partially redup. stem as iter.]

KUNAMA kuduru- "to make noise, roar, crash" [stem plus NS *r iter.]

SONGAY kúttùn "to bother someone, importune" [*kurtun, stem plus NS *tʰ cont. plus NS *n dur.]

Maban: MABA kùr-ì "to call"

Astab: Nub: DONGOLAWI kurub "to clatter, rattle" [stem plus NS *p extend.]

Kir-Abb: Nil: PSNil *kuːr "to call"

1057. *kʰúːd "pole"

Koman: UDUK kʰúrá' "staff" [stem plus NS *-ah n. deriv. suff.]

Koman: Gumuz: SESE kudɪa "cane" [stem plus NS *'y n. deriv. suff.]

FOR kuuru "tree"

Astab: NARA kura "stick"

Astab: Nub: DONGOLAWI kuricce "switch" [stem plus NS *tʰ n. suff.]

Kir-Abb: Nil: SNil: N.Kalenjin *kuːrey "house pole" [stem plus NS *y n. suff.]

1058. *kʰúl OR *kʰūl "kind of gourd"

SONGAY kùlà "neckless gourd with small opening" [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Surmic: DM: DIDINGA xuletit, PL. xuli "cucumber"

Kir-Abb: Nil: WNil: OCOLO okwolo "pumpkin" [NS *o- n. deriv. pref. plus stem]

Kir-Abb: Nil: WNil: LOTUKO e-xulo "bottle gourd" [e- is Lotuko gender pref.]

1059. *kʰùl "to bend (intr.)"

Koman: UDUK kʰūlūlàkʰūlūl "bent, crooked" [adj. by redup. stem]

KUNAMA ukunkula "elbow" [NS *o- n. deriv. pref. in assim. shape (*o > u /#_CuCu) plus partially redup. stem]

Sah: KANURI kə̀lá "to roll into a ball" (H) [stem plus NS *-a dispunc.]

Sah: KANURI kə̀lə́ "to wrap around" [stem plus NS *'y ess.-act. (?)]

SONGAY kùllà-kùllà "to have knock-kneed walk" [stem plus NS *-a dispunc., redup.; semantics: walk with knees repeatedly bending in]

Kir-Abb: Nil: WNil: OCOLO kul "to bow the head"

Rub: IK [ikukul- "to go the wrong way and come back": LOAN (expected *kuḷ-)] [*i- v. class pref. plus partially redup. stem; semantics: "bend" > "turn"]

1060. *kʰúmpʰ "to foam, froth, billow, bubble"

CSud: ECS *kpu "to billow"

Sah: KANURI kə́p "ideophone of pouring out of a foamy liquid"

SONGAY kúmfù "to froth, foam; froth, foam (n.)"

Astab: Nub: DILING kub "to foam, froth"

Kir-Abb: GAAM kúá "bubbles, froth, foam" [stem plus NS *-ah n. deriv. suff.]

Rub: IK kúfá, kúfúkúfá "to drizzle" [2nd entry: redup. stem as iter.]

1061. *kʰúːr "wooden vessel"

Koman: UDUK àkʰūr "small boat; trough of wood" [NS *a- n. deriv. pref. plus stem]

Sah: KANURI kùr "wooden mortar"

Maban: MABA kurok, PL. kurɲi "wooden vessel"

Astab: Nub: DILING kur "leather bucket"

1062. *kʰúːr OR *kʰúːd "hide, skin"

Koman: UDUK àkʰur "dry bark" (also Bender 1971: UDUK kʰur "bark") [NS *a- n. deriv. pref. plus stem]

SONGAY kúurú "skin, hide"

1063. *kʰúṣ OR *kʰúṬ "dusty or sandy ground" [Ṭ = t, tʰ, or t']

SONGAY kúsòw "dust" [stem plus NS *w n. suff.]

Kir-Abb: Nil: WNil: OCOLO kwojo "sand, sandy soil"

Kir-Abb: Nil: ENil: BARI kujöŋ "sand" [stem plus NS *ŋ n. suff.]

1064. *kʰwáh "to take apart"

Koman: UDUK kʰwá'...bwà "to divide" (bwà "in")

Sah: KANURI ká "to open, uncover; to strip off bark"

SONGAY kôòn "to be empty" [stem plus NS *n adj. suff.; v. < earlier adj.]

Astab: Nub: DILING kwata "to bring" [stem plus NS *tʰ cont., i.e., to take from one place and carry to another]

Kir-Abb: Nil: PWNil *kway "to herd" [stem plus NS *'y ess.-act.; semantics: take out (to pasture)]

Kir-Abb: Nil: ENil: BARI kö-yu "to abandon" [semantics: take away and put by itself]

Saharo-Sahelian semantic innovation: "to take apart" > "to take off, remove." Eastern Sahelian semantic innovation: shift of application of the verb from "take off" to "take (away)" in more general sense. Songay meaning derives via a shift from "to take off (covering layer)" to "to make bare or empty."

1065. *kʰwáːk' "to clear (of sky)"

Koman: UDUK kʰwák', kʰwá' "to clear" (of sky after rain)

Sah: KANURI kákát, kékét "to clear up (of sky)" (H) [stem plus NS *tʰ cont.; vowel result in 2nd shape remains to be explained]

SONGAY kóogó "dry" [semantics: clear weather causes drying out of things]

Astab: Nub: DONGOLAWI kakkɛ "to get warm at (fire)" [stem plus NS *'y ess.-act.]

Kir-Abb: Nil: WNil: OCOLO kwäk "sweat"

Rub: SOO [kɔkɔt "to cook": LOAN < E.Sahelian (?) language in which *k' > /k/] [stem plus NS *tʰ cont.]

Eastern Sahelian semantic innovation: "to clear (of sky)" > "to become hot (of weather)" > to become hot (in general)."

1066. *kʰwal̪ "to grasp and take"

Koman: UDUK kʰālápʰ "to pull along ground with stick when out of reach" [stem plus NS *p extend.]

Koman: UDUK [kʰwāl "to steal": LOAN from WNil]

KUNAMA kol-, kor- "to remove something from its place"

Astab: Nub: DILING kwal "to have, possess, own"

Kir-Abb: proto-Daju *koR- "to steal"

Kir-Abb: Nil: PWNil *kwal "to steal"

Kir or Kir-Abbaian semantic innovation: shift from early Eastern Sahelian sense of taking possession in general to gaining possession by theft in particular.

1067. *kʰwámp   "to branch off, take a divergent route"

Koman: UDUK kʰwám . . . bwà "forking (of roads)" (bwà "in")

SONGAY kámbà "to take a new route, branch off"

Astab: Nub: DILING kwab "to hide (intr.)"

Kir-Abb: Nil: WNil: OCOLO [kaam "space between two things": LOAN (expected *kwam)]

1068. *kʰwáɲ   "to dig up, scoop out"

Koman: UDUK kʰwány "to dig for roots, to dig a hole, to ditch"

Kir-Abb: GAAM kɔí- "to dip, scoop up"   [stem plus NS *'y ess.-act. or *-i itive]

Kir-Abb: Nil: PWNil *kwaɲ "to scrape away" (OCO-LO kwany "to comb"; NAATH kwany "to rake")

1069. *kʰwār OR *kʰwād   "to be cracked (of skin)"

Koman: UDUK kʰwārānyá' "scale of snake, shed skin of snake"   [stem plus NS *ɲ and *-Vh n. deriv. suff.]

SONGAY kárów "to crack, chap"   [stem plus NS *w punc.]

Astab: Nub: DONGOLAWI korkott- "cracked soil, dried mud"   [*korkort-, redup. stem plus NS *tʰ n. suff.]

1070. *kʰwɛ́:k'   "to get up"

Koman: UDUK kʰwá' . . . ē "to awake" (ē "amid")

Koman: UDUK kʰwák'/kʰwá' . . . ís "to stimulate" (ís REFL.)

Koman: GULE kágù "to stand"   [stem plus NS *-uh ven.?]

CSud: ECS *kɔ "to start"

SONGAY kóy "to depart, go, leave a place"   [stem plus *-i itive]

Kir-Abb: GAAM kɔ́ɔ́j- "to advance, enter, pass through, surpass"   [*kɔ́gɔ́j-, stem plus NS *ṣ caus.]

Probable Sudanic semantic innovation: "to get up, arise" > "to start off, proceed."

1071. *kʰwíɲ   "entrails"

CSud: PCS *kwi "bowels"

SONGAY kúná "inside, interior"   [stem plus NS *-ah n./adj. deriv. suff.]

Maban: MABA kuɲik, PL. kuɲi "entrails"

Kir-Abb: GAAM kúnd "heart"   [stem plus GAAM -d n. sing. (NS *tʰ)]

PROTO-NILO-SAHARAN STEM-INITIAL *kʰ or *k (*K₁)

1072. *K₁ŏb OR *K₁ŏp   "to cover"

KUNAMA kabu- "to cover, close"

FOR kobi "shield" (B)   [stem plus NS *-ih n. deriv. suff.]

Astab: Nub: DONGOLAWI kob "to shut, close"

Rub: IK kub- "to cover with lid"

Rub: IK kúb- "to be invisible, hidden"   [intr. < tr. by tone shift]

1073. *kʰɔ̌:m OR *kɔ̌:m   "to tell"   [root 990 plus NS *m iter. concis.?]

CSud: PCS *kɔ "to speak"

Sah: KANURI kòm "to count"

Kir-Abb: Nil: WNil: OCOLO kɔm "to say"

1074. *kʰúkʰ OR *kúkʰ   "to go out, depart"

CSud: PCS *ku "to take away" (ECS "to go away")

Astab: Nub: DONGOLAWI kugij "to lead"

Kir-Abb: BERTHA húh- "to go out"   [stem plus NS *ṣ caus.]

Kir-Abb: Nil: WNil: OCOLO kwɔg "to take along with one, take thing for another when one is already going"

1075. *kʰwɪ̄l OR *kwɪ̄l   "to crack, break open (intr.)"

CSud: PCS *kwi "to break"

Sah: KANURI kūl "cavity, cavern"

Sah: KANURI kúlók "to lance boil"

Astab: Taman: TAMA kul "mouth"   [stem plus NS *w punc. plus *k caus.]
   [semantics: mouth as an opening]

Astab: PNub *agwil "mouth" (DONGOLAWI agil; DILING ogul; etc.)   [NS *a- n. deriv. pref. plus stem; semantics: as in Taman]

Astab: Nub: NOBIIN kùl "hole"

Kir-Abb: Nil: WNil: OCOLO kwil "to have holes"

Kir-Abb: Nil: WNil: NAATH kwɪl "hole (in anything)"

Saharo-Sahelian semantic innovation: derivation of a noun for "hole or opening (in anything)" from the verb, presumably by tone shift. Western Astaboran semantic (and morphological?) innovation: derivation of a word for "mouth" from the meaning "hole, opening."

PROTO-NILO-SAHARAN STEM-INITIAL *k'

1076. *k'á   "to take into the mouth"

CSud: ECS *k'a "to bite"

Kir-Abb: Surmic: S.Surmic: ZILMAMU kauw- "to bite"   [structure as in ENil entry]

Kir-Abb: Nil: ENil: BARI kɔ-ja "to bite; sting (bee, etc.)"   [*kaw-, stem plus NS *w punc.]

Rub: IK nk'ák'- "to eat"   [redup. stem; source of /n-/ is uncertain, but possibly < *n-ak'ak'-, NS *n dur. plus redup. stem]

Rub: IK ak'át- "to snuff"   [stem plus NS *tʰ cont.]

Rub: IK ak'at "nose" (ak'atí-)   [< v. "to snuff," preceding]

Rub: IK ak'ár "palate"   [stem plus NS *r n. suff.]

Rub: IK ak'ak'uŋ "jaw"   [redup. stem plus NS *ŋ n. suff.]

Rub: IK ák'áf- "to yawn"   [stem plus NS *pʰ extend. intens.]

Affixation in all the Rub reflexes took place AFTER the shift, PNS *#CV# > pre-Rub *#VC#. The words for "to snuff" and "nose" in Ik were derived from the simple verb after a meaning change, shifting the focus of action from the mouth to the nose, that took place at some earlier time in the evolution of pre-Ik. Surma-Nilotic innovation: addition of Nilo-Saharan *w punctive to the stem to produce the meaning "to bite." This reconstruction assumes the East Central Sudanic meaning to be a separate parallel innovation of that subgroup. Alternatively, the original meaning could have been "to bite."

1077. *k'á:ɓ OR *k'ǎ:ɓ "to be soft, weak"

Koman: UDUK k'āɓūsák'āɓūs "fragile, easily bro-
 ken"

CSud: PCS *kpa "thin (of person)"

Sah: KANURI káp "to become soft, dissolve"

[stem plus *s n. suff. or *ɵ intens., re-
 dup. as adj.]

1078. *k'ád "to cut into"

SONGAY hérjè "to open with knife, cut into some-
 thing"

Astab: NARA kad "to butcher"

Kir-Abb: Nil: WNil: NAATH kar "to cut into long
 strips"

PRub k'ad "to cut into" (IK k'ád- "to shoot")

[*k'argai, stem plus NS *k intens. plus
 NS *-a dispunc. plus NS *-i itive, >
 *harge > /herje/]

1079. *k'àh "to depart, go away"

Sah: KANURI kà "to escape, avoid"

PRub *k'a- "to go"

A stem-final consonant *h must be reconstructed to account for the non-applicability here of the
PRub shift of Nilo-Saharan #CV# words to PRub #VC#.

1080. *k'àk' "to split (tr.)"

Koman: UDUK k'ākīc' "to mark with little grooves"

KUNAMA kakko- "to break, shatter"

SONGAY háỳ "to strike with a spear"

Kir-Abb: C.Jebel: AKA kaag- "to stab"

Kir-Abb: Nil: PWNil *kak "to spear" (OCOLO kaak
 "harpoon used in spear fishing"; NAATH kak "to
 hunt")

Kir-Abb: Nil: PWNil [*ka:k "to split" (OCOLO käk,
 NAATH kɔk): LOAN (from Koman?)]

Kir-Abb: Nil: ENil: BARI [kag-gu "to crack (of skin,
 plaster, wood, soil); to split": LOAN from WNil,
 which probably borrowed its word from Koman]

Rub: IK k'ak'- "to hunt (e.g., with a spear); to split
 or break something with a wedge"

[stem plus NS *t' iter. intens.]

[stem with gemin. as intens. or iter.]

[stem plus NS *-i itive]

Sahelian semantic innovation: A narrowing of verb application to a particular kind of splitting,
i.e., stabbing, usually specifically with a spear, appears in all the Sahelian non-borrowed verbs.

1081. *k'àp "to eat" [root 1074 plus NS *p extend.]

Astab: PNub *kab "to eat" (NOBIIN kàb, DILING
 kam; KADARU kámé "food")

Kir-Abb: Surmic: S.Surmic: KWEGU kəb "to eat"

Rub: SOO ɗab "to eat" (PRub *k' > SOO ɗ)

[Kadaru reflex: stem plus NS *y n. de-
 riv. suff.]

1082. *k'á:p "to scrape off"

Koman: UDUK k'áp^h "to peel, scrape skin off,
 whittle, slice"

CSud: MM: LUGBARA tólókpá "bare, denuded,
 hairless"

SONGAY háabú "to sweep"

[CSud *t- and *l- adj. pref. (NS *t^h and
 *l) plus stem (*kpá)]

[stem plus NS *-uh ven.]

It is tempting to see this root and roots 1083 and 1084 as common derivatives of an underlying
pre-proto-Nilo-Saharan root *k'a. The problem is that while final *p here could be interpreted as

the Nilo-Saharan *p extension of extended action, the final consonants of the other two roots can-
not be identified with any currently reconstructed early Nilo-Saharan verb extensions. One possi-
ble explanation for future investigation is that the final consonants in roots 1083 and 1084 are fos-
sils of extensions productive at some still earlier point in the ancestry of the proto-Nilo-Saharan
language but already moribund in the proto-Nilo-Saharan language itself.

1083. *k'áʈ^h "to scrape or scratch the surface of"

Koman: UDUK k'áʈ^h "to tickle"

Sah: KANURI kát "to skim, clean off"

Astab: Nub: DONGOLAWI kadub "to dig the sur-
 face of, dig on the surface of; to dig, dig up, dig
 out"

Kir-Abb: Surmic: DM: DIDINGA kat "to cultivate"

[stem plus NS *-uh ven. plus NS *p
 extend.]

See note to root 1082. Eastern Sahelian semantic innovation: application of the verb to digging the
surface of the ground.

1084. *k'à:y "to scratch out, scratch off"

Koman: UDUK k'ā "to make ditch" (as around
 house)

KUNAMA kai-, kairi- "to scratch"

Sah: KANURI kài "to skin"

FOR kail- "to shave; to scrape off"

Kir-Abb: GAAM əi(d)- "to scratch"

Kir-Abb: BERTHA k'é:n- "to peel"

Kir-Abb: Nil: WNil: MABAAN kɛ̂ɛnnʌ, PL. kɛ̂jjʌ
 "(finger)nail"

Rub: IK ɪk'ɛk'ɛ- "to crack seeds of pumpkins or
 gourds"

[2nd form: stem plus NS *r iter.]

[stem plus NS *l iter.]

[stem (plus NS *t^h cont.)]

[stem plus NS *n dur.]

[*i- v. class pref. plus redup. stem; via
 intermediate sense "to peel," as seen
 in Bertha]

See note to root 1082.

1085. *k'ayl "cold"

KUNAMA agegela "frost, ice"

Astab: NARA kalli "cold" (Bender 1971: kɛli)

Kir-Abb: GAAM əil "cold"

[NS *a- n. deriv. pref. plus partially re-
 dup. stem]

1086. *k'á'y "to chew" [root 1076 plus NS *'y ess.-act.]

Koman: UDUK k'á "to gnaw, chew"

Koman: Gumuz *k'əŋ "to bite"

KUNAMA kayo- "to chew"

SONGAY hèŋ, PL. hìŋò "tooth"

Astab: NARA ken "bitter"

Kir-Abb: GAAM ài(n) "bitter"

Kir-Abb: Nil: PWNil *kac "to bite"

Kir-Abb: Nil: WNil: OCOLO kɛc "bitter"

Rub: IK k'ídz- "to bite"

[stem plus NS *ŋ punc.]

[*hayŋ, stem plus NS *ŋ n. suff.]

[stem plus NS *n adj. suff.]

[stem (plus NS *n adj. suff.)]

Sahelian semantic innovation: A shift of meaning of the verb from "to chew" to "to bite" is direct-
ly attested in the Eastern Sahelian reflexes and indirectly in the derived verb for "tooth" in Songay.
The meaning "to bite" was separately innovated by a distinct morphological addition in Gumuz.
Eastern Sahelian innovation: derivation of root for "bitter" from the verb by optional addition of
the Nilo-Saharan modifier suffix in *n; semantics: as in English and German *bitter*.

1087. *k'éɖ   "to be small"

Koman: UDUK k'áɗák'āɗ "weak"	[adj. by redup. stem]
KUNAMA: ILIT kadiiš- "small"	[stem plus NS *tʰ adj. suff.]
Astab: Nub: NOBIIN kide "small"	[stem plus NS *y n./adj. suff.]
Kir-Abb: NYIMANG [kɛdìŋ "small": probable LOAN (expected *kɛɖiŋ)]	[stem plus NS *ŋ n./adj. suff.]
Kir-Abb: Daju: SHATT kəɗejewa "narrow"	[stem plus NS *tʰ adj. suff.]
Kir-Abb: Surmic: SESurmic *kidic- "small"	[stem plus NS *tʰ adj. suff.]

Northern Sudanic innovation: stem plus NS *tʰ adjective suffix to form an adjective *k'éɖɛːtʰ "small."

1088. *k'éːɭ   "tip, end, extremity"

Sah: KANURI kə̀lə̀ "head"	[stem plus NS *-ah n. deriv. suff.]
Astab: NARA keːla "head"	[stem plus NS *-ah n. deriv. suff.]
Astab: PNub keːl "border, boundary" (DILING kel, KADARU kɛl; NOBIIN kéel)	
Kir-Abb: GAAM ééɫ "border, boundary, limit"	
Kir-Abb: NYIMANG kire "foot"	
Kir-Abb: proto-Daju *eRe "foot"	
Kir-Abb: PNil *keːlʸ "foot/leg" (ENil: PTung'a *-kɛju; PSNil *keːlʸ)	

Saharo-Sahelian innovation: derivation of a word for "head" *k'éɭah, by adding the Nilo-Saharan noun deriving suffix *-ah to the stem. Kir semantic innovation: narrowing of the application of the simple root to a particular extremity, the foot.

1089. *k'ér   "ewe lamb, female kid"

SONGAY hérŏw "female kid"	[stem plus NS *w n. suff.]
Kir-Abb: BERTHA k'éɫmɛ̀ "lamb"	[stem plus NS *m n. suff.]
Kir-Abb: TEMEIN kiriaŋ, PL. kikiriaŋ "sheep"	[stem plus NS *ŋ n. suff.]
Kir-Abb: Nil: PENil *kerr- "sheep"	

Kir semantic innovation: shift to generic meaning "sheep."

1090. *k'ér   "to twist (intr.)"

KUNAMA kara-, kala- "to twist, wind (of cord, snake, cloth, etc.)"	
Sah: KANURI kə̀rí "to turn (leg), twist (rope), wring out (linen)"	[stem plus NS *-i itive or *-y ess.-act.]
Astab: Nub: DONGOLAWI kɛrɛŋ "curved, bent, crooked"	[stem plus NS *ŋ n./adj. suff.]
Kir-Abb: GAAM əri- "to twist" (*ərj-)	[stem plus NS *'y ess.-act.]
Kir-Abb: Nil: WNil: OCOLO kyɛr "to describe a circle"	

1091. *k'éyl   "horn"

Koman: Gumuz: SESE k'ɛla "horn"	
KUNAMA gila "horn"	
SONGAY híllì "horn"	
Astab: NARA keːli "horn" (Bender 1971)	
Kir-Abb: GAAM íl "horn"	
Kir-Abb: Surmic: SESurmic *k'er- "horn"	[NS *l > Surmic *l > SESurmic *r]
Kir-Abb: Nil: WNil: NAATH kɪl "rhinoceros"	[semantics: animal having a horn]

CSud: PCS *kpe "stalk"	
SONGAY háfè "rod, wand, switch"	
Kir-Abb: GAAM əwda "sorghum stalk"	[stem plus NS *tʰ and *-ah n. suff.]

1093. *k'íl   "to sink (tr.)"

Koman: UDUK k'úl "depth"	
KUNAMA -gigil- "to hollow, leaving a recess"	[partially redup. stem as iter.]
Sah: KANURI kə́lə́b "ideophone of going under water"	[stem plus NS *p extend.]
Astab: Nub: DONGOLAWI kidd- "to sink, dive"	[*kild-, stem plus NS *tʰ cont.]

Saharo-Sahelian semantic innovation: shift to intransitive and narrowed application, to sinking in water.

1094. *k'íːr   "to slit, rip (with claw, sharp point)"

Sah: KANURI šír "to cut to strips with fingernail"	
FOR kiir- "to scratch (of thorn)"	
FOR kirgin- "to scratch"	[stem plus NS *kʰ iter. plus NS *ɲ extend.]
Kir-Abb: BERTHA k'íːr- "to cut (hard substance)"	
Kir-Abb: NYIMANG kir- "to cut"	
Rub: IK iɟír- "to be decorated (of gourds), be striped (of animals, e.g., zebra)"	[*i- v. class pref. plus stem; IK /ɟ/ < /k'/ in older persons' speech; influence of root 467 probable here]
Rub: IK ɪk'ɪr- "to write"	[*i- v. class pref. plus stem; lack of high tone is as yet unexplained]

Kir-Abbaian semantic innovation: shift of meaning to cutting (with a sharp blade?).

1095. *k'ít OR *k'íːt   "to cough"

Koman: UDUK k'útʰ "to cough"	
CSud: PCS *k'i "to cough"	
KUNAMA kidau- "to make a prolonged or big sound"	[stem plus NS *w punc.]

1096. *k'ó   "today"

Sah: KANURI kû "today"	[possibly < *kow, stem plus NS *w n. suff.]
SONGAY hòŋ "today"	[stem plus NS *ŋ n. suff.]
Rub: SOO ɛɟɔ "today"	[NS *a- n. deriv. pref., with progressive assim. to stem mid V, plus stem; PRub k' > SOO ɟ]

1097. *k'ól   "to make a hole"

Koman: UDUK k'ól "to bore out a hole with a spear; to bore long, lengthwise hole"	
SONGAY húllú "hole in tree"	[stem plus NS *-uh n. deriv. suff.]

1098. *k'ól   "to chew"

CSud: PCS *k'o "mouth"
KUNAMA akalma "molar tooth"

[NS *a- n. deriv. pref. plus stem plus NS *m n. suff.]

Astab: Nub: Hill Nubian *kol "to eat"
Kir-Abb: BERTHA k'ɔ́l- "to eat"

Possible Eastern Sahelian semantic innovation: "to chew" > "to eat." This may, however, be a case of parallel but separate semantic shifts, since there are two other competing words for this meaning that appear to trace back to proto-Eastern Sahelian (see Table 4.3 in Chapter 4).

1099. *k'ɔt'   "to become unpleasant (taste, condition, etc.)"

KUNAMA katima "bad"
Sah: KANURI [kúttù "disagreeable, unpleasant, bad, bitter": probable LOAN from Songay-related language (expected *kəs-)]
SONGAY hóttù "to be bitter, severe; to be burning hot (of sun); bitter (adj.)"
Astab: NARA koš-ko "bad"
Astab: Nub: NOBIIN kùšš- "to ferment, rot"

[stem plus NS *m adj. suff.]

[< *k'ostu, stem plus NS *tʰ n./adj. suff.; v. < adj.]

[stem plus NS *k adj. suff.

[possible LOAN: *o > *u shift remains to be explained]

It is tempting to see a Saharo-Sahelian semantic and morphological innovation in the Kanuri and Songay reflexes, but the parallel phonetic outcome in Kanuri of /tt/ for expected *st, at variance with the presence of other *sC sequences (where C = voiceless stop) in the language, indicates this item to be another of the loanwords in Kanuri from an extinct Songay-related tongue (e.g., Kanuri entry in root 993 above).

1100. *k'ɔ́   "to be"

Koman: UDUK k'ó "to be somewhere (pl. subj.)"
KUNAMA ko- "to be, become"
Sah: KANURI -gò << formative of non-verbal predicates >>

SONGAY húná "to live, be alive"

FOR ke(ŋ)- "to be there"

Astab: NARA ken "to exist, be, stay, live"

Kir-Abb: Nil: ENil: BARI kɔn-dya "to do" .

[Lukas 1937, 143, calls it obsolete verb "be" or similar; *-kɔ́-h "being," stem plus NS *-Vh n. suff., may explain underlying V length and tone shift]

[stem plus NS *n dur. plus probably NS *-a dispunc.]

[stem plus NS *ŋ punc.; /e/ for expected *o remains to be explained]

[< Reinisch: possible [kən] with *ɔ > central V; stem plus NS *n dur.]

[stem plus NS *n dur.; semantics: "become" > "act, happen" > "do"]

Saharo-Sahelian morphological innovation: addition of Nilo-Saharan durative in *n.

1101. *k'ɔ́:ɗ   "base of neck"

Koman: UDUK k'ɔ̀ɗ "back of head; against, behind, after"
SONGAY hóhóorì "clavicle"
Maban: MABA korkoruk "shoulder"
Kir-Abb: BERTHA k'ɔ̀rɔ́ŋ "back of neck"

[partially redup. stem]
[redup. stem; -k is Maba sing. suff.]
[stem plus NS *ŋ n. suff.]

1102. *k'ɔ̀mp   "lower abdomen"

CSud: PCS *kpoa "rumen"

[stem plus CSud *-a n. suff. (NS *-ah n. deriv. suff.)]

KUNAMA komba, kumba "hairs which cover the extremity of the abdomen"
Rub: Ik k'ɔb "navel"

1103. *k'ɔ:ŋk'   "snake"

Astab: Nub: DONGOLAWI ka:g "snake"
Kir-Abb: C.Jebel: AKA kuke "snake"
Kir-Abb: proto-Daju *koRkane, PL. *koRkuge "snake"
Kir-Abb: Surmic: DM *kʊk- "snake"
Kir-Abb: Nil: WNil: MABAAN kâaŋʌ̀, PL. kʌ́ggʌ́ "snake"
Rub: SOO ɠoɠoi "snake"

[metathesis of *kokR-, stem plus NS *r n. suff.]

[probable *k'ok'ori, stem plus NS *r n. suff., as in Daju form; PRub *k' > SOO ɠ, *r > Ø /V_]

The former presence of the nasal consonant must be reconstructed to account for vowel raising in the Surmic and Central Jebel reflexes. The shared innovation of adding the Nilo-Saharan *r noun suffix in Soo and apparently in Daju for expected *u, suggests that the Daju form may originally have been borrowed from a Rub-related language. The Maaban lack of vowel raising may, however, be due to proto-Nilotic sound shifts in the environment /k'_, as can be suggested also from the Nilotic reflexes of root 1104 following.

1104. *k'ɔɲ   "to take into the mouth"

Koman: UDUK k'ūnyák'ūny "good-tasting, tasty, good-smelling"
Astab: Nub: DILING kaɲ "to lick"
Kir-Abb: GAAM kuɲ- "to suck (of child)"
Kir-Abb: GAAM kunj- "to blow nose"
Kir-Abb: Nil: PENil: *-kɔɲ "to bite"
Kir-Abb: Nil: PSNil: *kaɲ "to bite"

[adj. by stem redup.]

[stem plus NS *t' iter. intens.]

1105. *k'ɔ́pʰ   "blood"

Koman: UDUK àk'ōpʰ "red soil"
Koman: OPO kapa "red"
KUNAMA kokoba "blood"
Kir-Abb: GAAM afad, PL. afəłg "blood"
Kir-Abb: C.Jebel: AKA gyefa, jééfa, KELO gyèèbá, MOLO gyà̀əwà "blood"
Kir-Abb: BERTHA k'áfà "blood"
Kir-Abb: Nil: ENil: MAASAI il-óíkóp "blood guilt of one who has not yet paid compensation to kin of his victim"

[NS *a- n. deriv. pref. plus stem]

[partially redup. stem]
[stem plus NSud *t̪ n. suff.]

[Maa *oi- n. forming element plus stem; V category shift to +ATR]

Jebel phonological innovation in this root: shift of *ɔ to *a, as seen in Gaam and Bertha; a further fronting shift, of *a > *e, links the Central Jebel subgroup, which together with Gaam comprises the West Jebel branch.

1106. *k'ú:l   "to swell"

Koman: UDUK k'ūlūš "to swell (of seed about to sprout), to inflate (tire), to be full of air"
KUNAMA kukkul- "to suffer glandular inflamation"
KUNAMA kukula "abscess"
Sah: KANURI kúl "to become fat, thick"

[stem plus *ş ext (elsewhere in NS *ş is a caus.)]

[redup. stem (assim. *kulkul-)]
[partially redup. stem]

Maban: MABA kulak "big"

Kir-Abb: GAAM kúl- "to swell up"

1107. *k'úⱡ OR *k'ūⱡ "thick pole"
KUNAMA kuleita "support pole"
Kir-Abb: proto-Daju *ku'jis "pestle"
Rub: IK k'úⱡ "pole to close gate (at night)"

Other possible pronunciations: *k'úːⱡ or *k'ūːⱡ.

1108. *k'ùːⱡ "to pick out, extract (with fingers)"
Sah: KANURI kúlái "to pick out (of nose)" (H)
FOR kull- "to steal"
Astab: Nub: DONGOLAWI kuːl "to make issue out, put out, take out, extract"
Rub: IK ɪk'ʊʊl- "to take food out of one's mouth with a finger"

1109. *k'ūːr "to scrape"
Koman: UDUK k'ūrūm bwàmán "to hollow gourd" (bwàmán "inside")
KUNAMA kurtu- "to grind teeth"
Sah: KANURI kúr "to draw, trace"
Sah: KANURI kùrâi "to scrape off gradually" (H)

Sah: KANURI kùrét "to scratch"
FOR kurg- "to grind roughly"
Kir-Abb: BERTHA [k'ur- "to sweep": LOAN (expected *k'uːl-)]
Kir-Abb: Nil: WNil: NAATH kur "to scratch nose"
Kir-Abb: Nil: ENil: MAASAI -kúr(r) "to scratch, brush off, paw the ground"
Rub: IK [ikúkúr- "to dig with one's fingers, to scratch, of fowl": LOAN (expected *ik'uk'ur-)]

1110. *k'úːt OR *k'úːtʰ "to fold, bend (especially arm or leg)"
Koman: UDUK k'úcʰ "to bend thing, arm, leg, to close hand; to roll up, to fold"
Koman: OPO k'ujin "knee"
Koman: GUMUZ k'uci-cukwa "knee"

SONGAY [kúusí "to fold the legs": LOAN (expected *húusí)]
Kir-Abb: Nil: WNil: NAATH kwoc "instep"

1111. *k'wáɗ OR *k'wāɗ "to be little, few"
Koman: UDUK k'wāɗásák'wāɗás "thin, of persons"
PRub *k'wad- "to be little, few" (IK k'wáɗ-)

Other possible reconstructions: *k'wáːɗ OR *k'wāːɗ.

[stem plus NS *-ah n./adj. deriv. suff.; -k is Maba n./adj. sing. suff.]

[stem plus NS *y and *tʰ n. suff.]
[stem plus NS *ṣ n. suff.]

[stem plus NS *'y ess.-act.]
[gemin. as intens. or freq.?]

[*i- v. class pref. plus stem]

[stem plus NS *m iter. concis.]

[stem plus NS *tʰ cont.]

[stem plus NS *-a dispunc. plus NS *'y ess.-act.]
[stem plus NS *tʰ cont.]
[stem plus NS *k intens.]

[stem plus NS *n n. suff.]
[*k'uci, stem plus probably NS *-ih n. suff., i.e., "joint"; for -cukwa, see root 904]

[stem plus NS *s n./adj. suff., redup. as adj.]

1112. *k'wakʰar "tough"
Koman: UDUK k'ōhōrák'ōhōr "tough"
Astab: Nub: DONGOLAWI kogor "strong, powerful; strong, hard, tough"
Rub: SOO ɠwak, PL. ɠwègí "hard"

[adj. by redup. stem]

[pre-Soo *ɠwakr-, with regular Soo *r deletion; PRub *k' > SOO ɠ; Carlin records this word as gwaɠ]

1113. *k'wér "to scrape"
Koman: UDUK k'wár "to write, draw; to scratch with nail or thorn"
KUNAMA korko- "to grind to shape grindstone"
Sah: KANURI kárát "to sharpen, hone"

Kir-Abb: Nil: ENil: BARI kwɛkwɛr-ja "to clean out (remaining food)"
Rub: IK ɪk'wɛr- "to comb, brush hair"
Rub: IK [k'wár "scar": LOAN from Koman (*a for expected*ɛ)]

[stem plus NS *kʰ iter.]
[stem plus NS *-a dispunc. plus NS *tʰ cont. > iter.]
[partially redup. stem as iter.]

[*i- v. class pref. plus stem]

1114. *k'wɛy "fingers (suppl. pl.)"
Koman: OPO k'wi "hand"
CSud: PCS *kwe OR *k'we "finger"
KUNAMA kona "hand"
Kir-Abb: TEMEIN kwi "hands"
PRub *ák'w "palm, sole" (IK ák'w)

Rub: IK [kwɛt "hand, foreleg": LOAN from language in which NS *k' > *k]

[stem plus NS *n n. suff.]

[NS *a- n. deriv. pref. plus *-k'w stem remnant]

[stem plus NS *tʰ n. suff.]

1115. *k'wìⱡmāh "organ of the chest" (heart?)
FOR kílmá "heart"
Kir-Abb: GAAM əlma "liver"
Kir-Abb: Daju: SILA cirme "chest"
Kir-Abb: Nil: WNil: MABAAN kiima, JUMJUM kima "heart"

[regular WNil *l > Ø /#CV_N]

1116. *k'wít OR *k'wít' "to chew"
Koman: UDUK k'ūcūr "to suck something in the mouth (not swallow)"
CSud: PCS *k'wi "tooth"
Sah: KANURI kúkús "to nibble"
Maban: MABA kíːs- "to bite"

[stem plus NS *r iter.]

[partially redup. stem as iter.]

PROTO-NILO-SAHARAN STEM-INITIAL *k' or *kʰ

1117. *k'èːr OR *kʰèːr "to become cold"
Sah: KANURI kàr "to freeze"
Sah: Tubu *kiri "cold"
Maba: MABA kera "cold"

[stem plus NS *-Vh n./adj. suff.]
[stem plus NS *-ah n./adj. suff.]

Astab: Taman: MERARIT kiːri "cold"

[stem plus NS *-Vh n./adj. suff.; possible loan from Saharan language?]

Kir-Abb: proto-Daju *kəRkəR(e) "cold"

[redup. stem (plus NS *-Vh n./adj. suff.]

Possible Saharo-Sahelian development: The use of this root in adjectival form, *k'eːreh (or *kʰeːreh), accounts for the Tubu, Merarit, and Daju reflexes (for NS *-eh# > Saharan *-i#, see root 24)]

1118. *k'óːs OR *kʰóːs "to not move, be still"

CSud: ECS *ku OR *k'u "to stay, stand still"

KUNAMA kus- "ought to" (postpositioned aux. v.)

Sah: KANURI kúšé "to look for"

[stem plus NS *'y ess.-act.]

Maban: MABA kússáː- "to wait" (L)

[stem plus NS *-a dispunc.?]

Kir-Abb: Nil: WNil: OCOLO [kut "to be still, hush, be quiet, cease a noise": LOAN (expected *kot)]

Kir-Abb: Nil: ENil: TESO -kot "to want, need, desire, be eager"

Northern Sudanic semantic innovation: A shift in application from the concrete action of being still to the figurative stationariness of waiting for or expecting (and hence the optative usages seen in the Kunama and Teso reflexes) is present in all but the Central Sudanic and the borrowed Ocolo reflex, which itself may be the borrowing of an as yet unattested Koman reflex.

1119. *k'ûz OR *kʰûz "to break off (tr.)"

Sah: KANURI kùzók "to chip off"

[stem plus NS *kʰ iter.]

Maban: MABA kusum- "to fell"

[stem plus NS *m iter. concis.]

Astab: PNub *kuz "to loosen, undo, untie" (DILING kuj, DONGOLAWI kus)

PROTO-NILO-SAHARAN STEM-INITIAL *k, *kʰ, or *k' (K₂)

1120. *K₂êrɛh OR *K₂êdɛh "bottle gourd"

CSud: MM [*kɛrɛ "bottle gourd": LOAN from ENil]

FOR kèré "calabash"

Kir-Abb: Nil: WNil: NAATH kɛr "gourd"

Kir-Abb: Nil: ENil: Ateker *-kɛrɛ "milking gourd"

1121. *kùːl OR *kʰùːl OR *k'ùːl "to suck"

Sah: KANURI kùlít "to feed (newborn)"

[stem plus NS *t̞ caus.]

Kir-Abb: Nil: PSNil *kuːl "to suck"

PROTO-NILO-SAHARAN STEM-INITIAL *θ

1122. *θa << first person subordinate plural exclusive pronomial >>

Saharan *s << 1st person obj. marker of v. >>

[see Cyffer 1981]

Sah: BERTI su "I"

[stem with *-u sing. marker substituted for stem *a (see affix 67, Chap. 7)]

Sah: BERTI sinan "we"

[*sin-, stem plus probably pl. in *n; plus *-an suff. of all Berti pl. pron.]

Kir-Abb: BERTHA hàθáŋ "we"

[NS *kʰ n. pref. plus Kir-Abb *aθa "we (excl.)," as more directly attested in Daju (*kʰ as stage article III > "particular we," i.e., "we (incl.)"), plus NS *ŋ pl. suff., regeneralizing root meaning to any and all "we"]

Kir-Abb: BERTHA hàθú "you (pl.)"

[BERTHA hàθáŋ "we," in its pre-Bertha shape *haθa, with 2nd person pl. root *u (1403) substituted for 1st person *a (< *ah, root 1583)]

Kir-Abb: proto-Daju *-aš- "we (excl.)"

Kir-Abb: Nil: ENil: TESO [is(y)ɔ "we (excl.)": LOAN from Wn Rub]

Rub: Wn Rub *-esa << 1st person sing. subj. marker of v. >>

[probable *ai-sa, < PRub *ai "I" (root 1584) plus stem]

Rub: SOO ísíà "we (excl.)"

[regular Soo pron. shape *iCia, where C marks person/number]

Rub: SOO -ise, -umse << 1st person pl. excl. subj. marker of v. >>

[regular v. marker shape -iCe, where C indicates person/number; 2nd form embodies indep. pron. seen in Nyang'i reflex following]

Rub: NYANG'I mis "we (excl.)"

[*m- < NS *am "we (excl.)" (root 161), plus Rub reflex of root as seen in SOO ísíà "we (excl.)"]

Rub: IK -isina << 1st person pl. incl. subj. marker of v. >>

[for composition of this marker, see root 279]

This stem most probably began as the early Nilo-Saharan subordinate first person plural exclusive pronomial—existing alongside a corresponding subordinate inclusive root *ti (780)—with new singular and plural forms derived from it in Saharan by substitution of *u singular and *-ih plural suffixes for original stem *a (as seen in BERTI su "I" and *si- in /sinan/ "we"). The vowel element of the root was removed entirely in Rub by the quite different analogical reconfigurings by which the Rub languages converted it into an independent subject pronoun. Kir-Abbaian innovation: derivation of a second person plural exclusive pronoun from this stem, of the probable shape *aθa indicated by the Daju and Bertha outcomes, consisting of the root reshaped by analogy to the common Nilo-Saharan VCV format of independent pronouns.

1123. *θágw OR *θáɟw "goat or sheep that has not yet born young"

SONGAY sagey "male kid" (P)

Kir-Abb: proto-Daju *šag- "sheep"

Kir-Abb: PNil *t̞agw "head of cattle that has not born or beget young" (WNil: NAATH t̞ak "ox"; PENil *-tágw- "heifer")

[stem plus NS *y n. suff.]

1124. *θàːk'w "to spill (intr.)"

Koman: UDUK àšõk' "rain"

CSud: PCS *θa "to flow out"

KUNAMA šakalu- "to splash about (of liquid in a shaken container, water in a container while washing, etc.)"

Sah: KANURI sàk "to drip, leak, filter"

Kir-Abb: Surmic: S.Surmic *caːK- (?) "wet" (TIRMA caːgi; MURLE cəkcəy)

Kir-Abb: Nil: WNil: OCOLO t̞äk "to run over, splash over (as water in a pot)"

Kir-Abb: Nil: SNil: Kalenjin [*sak "to sieve, filter": LOAN (expected *taːkw)]

[NS *a- n. deriv. pref. plus stem]

[stem plus NS *l iter.]

The consonant sequence *k'w rather than *k is reconstructed to account for stem-vowel rounding in Uduk.

1125. *θaːm "fringe of hair"

KUNAMA šamana "fringe, eyelash, edge of hairs, down, felt" — [stem plus NS *n n. suff.]

Astab: Nub: NOBIIN sàamée "beard" — [stem plus NS *y n. suff.; DONGOLAWI saːma "beard" may be a loan from NOBIIN; Hill Nubian *salm- "chin, beard" appears to be a distinct root (*salm- should yield DONGOLAWI *samm- and presumably also NOBIIN *samm-)]

Kir-Abb: Surmic: DM *camuny "beard" — [stem plus NS *ɲ n. suff.]
Kir-Abb: Nil: PSNil *taːmoʀ "beard" — [stem plus NS *r n. suff.]
Rub: IK [tamʊr "beard": LOAN (expected *sam-) from SNil] — [structure as in SNil reflex]

Possible Eastern Sahelian semantic innovation: narrowing of meaning to a particular kind of hirsute fringe, a beard (unless the Kunama meaning is an extension of an original sense "beard"; but this seems the less probable course).

1126. *θayr OR *θayD "to cut up" [D = d, ɗ, or ɖ]

CSud: ECS *θɛ "to slaughter" (livestock)
KUNAMA -šeret- "to scratch, slash" — [stem plus NS *tʰ cont.]
Astab: Nub: DONGOLAWI seːr "to chop, cut up, cut small"

1127. *θéh "with, at"

CSud: PCS *θe "with" (associative)
SONGAY sê "for, on account of, to (direction, goal)" — [Songay tone implies original stem-final *h]
Astab: NARA si "in, at" (time)
Kir-Abb: BERTHA θέ "at"
Kir-Abb: Surmic: DM: MURLE -θe "for"

1128. *θeyn "chest"

CSud: PCS *θi "heart"
Astab: Nub: DONGOLAWI seːn "navel"
Kir-Abb: Surmic: S.Surmic [*šin "heart" (ME'EN šini; MURLE ðinið): LOAN (expected *cin-?)] — [Murle reflex: stem plus *-s sing. suff. (> MURLE ð)]
Kir-Abb: Nil: WNil: proto-Luo *ţɪn "breast"
Kir-Abb: Nil: WNil: BURUN ţeniţ "breast" — [stem plus NS *tʰ or NSud *ţ n. suff.]
Kir-Abb: Nil: ENil: Ateker *-kisin "breast" — [pre-Ateker *kitin, NS *kʰ n. pref. plus stem as in SNil reflex]
Kir-Abb: Nil: PSNil *kitin "breast" — [structure as in Ateker reflex]

1129. *θéyb OR *θéyp "to remove (covering layer)"

CSud: PCS *θɛ "husk, shell, fur"
Sah: KANURI sáp "to slide under, shovel up"
FOR sibiŋa "hair pulled out in fright" — [stem plus NS *ŋ n. suff. (or *ŋ pl. marker?)]
Maban: MABA sebek, PL. sebetu "tweezers" — [stem plus NS *-Vh n. deriv. suff.?]

Astab: NARA sebi "hair"
Astab: Nub: DONGOLAWI sibir "feather" — [stem plus NS *-ih or *'y n. deriv. suff.] [stem plus NS *r n. suff.; semantics: "hair" > "feather"]
Rub: SOO θibθitu "to remove" — [stem plus SOO -θitu recip.]

Other possible reconstructions: *θéyb or *θéyp. Sahelian semantic innovation: A specialized application of the verb to the pulling out of hair underlies all the non-extended Sahelian forms of the root.

1130. *θîh OR *θíh "to become more"

Koman: UDUK šíʼšíʼ "excessively, in great numbers" — [adj. by redup. stem]
CSud: PCS *θi "to increase, become more"
FOR is- OR si- "to collect (tr.) people" (B)
Kir-Abb: Nil: WNil: OCOLO aţyey "become very numerous" — [NS *a- n./adj. deriv. pref. plus stem plus NS *y n./adj. suff.]
Kir-Abb: Nil: WNil: TESO -ti "huge, enormous"

1131. *θòh "to seep"

CSud: PCS *θo "to run out (liquid)"
Sah: KANURI sò "to be still damp"
Kir-Abb: GAAM sɔ̀i- "to be wet" — [stem plus NS *'y ess.-act.]
Kir-Abb: GAAM sɔɔd "mud" — [stem plus NS *tʰ or NSud *ţ n. suff.]

1132. *θòp OR *θòb OR *θòɓ OR *θop' "to revile"

CSud: ECS *θo "to revile"
SONGAY sóbè "to insult, revile" — [stem plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)].

1133. *θɔ̀h OR *θɔ̀ːh "to tear (off or out)"

CSud: PCS *θɔ "to tear (off)"
KUNAMA šo- "to uncover, strip"
SONGAY sóosò "to pull threads out of fabric" — [redup. stem *sɔhsɔh, with regular Songay *Vh > VV /C_C]

1134. *θu OR *θuː "to sink, go down"

CSud: PCS *θu "to descend"
KUNAMA šu- "to deflate"
KUNAMA šušu- "to be asleep" — [redup. stem]
Kir-Abb: Nil: WNil: OCOLO ţuc "to trim (lamp)" — [stem plus NS *ş caus.; semantics: to lower (flame of the lamp)]

1135. *θùm "to sniff"

Koman: Sn Koman *šunš "nose" (UDUK šūš, KWAMA šunš, etc.) — [< *šum-š, stem plus NS *ş n. suff.]
Koman: GULE fufan — [stem plus NS *n n. suff., commonly added in Gule without derivational effect; as Bender has shown, Sn Koman *š regularly corresponds to GULE /f/]
KUNAMA šumi- "to smell slightly, be high"
SONGAY súmmú "to kiss" — [probable *sum-ŋ-, stem plus NS *ŋ punc.]

SONGAY súnsùm "to suck" [redup. stem as iter.]

Kir-Abb: BERTHA [šùmbúŋ- "to breathe": LOAN from language in which NS *θ > š, probably therefore Koman] [stem plus NS *p extend. plus NS *ŋ punc.]

Koman-Gule shared innovation: derivation of a noun for "nose" from this verb root.

1136. *θùmp OR *θūmp "to mix, stir together"

Koman: UDUK šūm . . . ɾs "to stir very thick food" (ɾs REFL.)

KUNAMA šumba "broth, soup" [semantics: soup is a mixture]

KUNAMA šumbure- "to muddy, perturb, mess up" [stem plus NS *r iter.]

Sah: KANURI sə́b "ideophone of collective simultaneous action"

Astab: NARA [šomba "broth": LOAN from Kunama (/š/ for expected /s/)]

1137. *θùnṯ "to inhale" [root seen in root 1135 plus NS *ṯ caus.]

Sah: KANURI sə́n "ideophone of swallowing action"

SONGAY súndù "to inhale snuff" [stem plus NS *-uh ven.]

Astab: Nub: DONGOLAWI sundɛ, sunnɛ "to inhale" [stem plus NS *'y ess.-act. (*-a'y); 2nd shape: loan < Nobiin?]

Astab: Nub: NOBIIN sùnn- "to smell (intr.)"

.1138. *θuŋk "to move fluid around in mouth" [root seen in 1135 plus NS *k intens.]

KUNAMA šugu- "to rinse mouth"

Astab: Nub: DONGOLAWI sukk- "to chew tobacco" [stem with gemin. as iter.]

Kir-Abb: Nil: WNil: OCOLO ṯuŋ "to froth at mouth"

1139. *θwà OR *θwàh "to dry (tr.)"

Sah: KANURI sòsò "to heat and dry over coals" [redup. stem as intens.]

Astab: Nub: DILING šoŋ "to dry" [stem plus NS *ŋ extend.]

Astab: Nub: DILING šoŋcad, PL. šwaŋcige "dry" [Diling v. plus NS *ṣ n./adj. suff.]

Kir-Abb: Nil: WNil: OCOLO ṯwa "dry"

1140. *θwá: "to eat"

Koman: Sn Koman *šwa "to eat (UDUK šwá "to eat (not meat or anything chewed)"; KOMO ša, KWAMA ša:ša "to eat") [Kwama reflex: redup. stem]

Koman: Gumuz *s- "to eat"

CSud: PCS *θa "to eat; right hand" [2nd meaning: the hand for eating is a widespread African metaphor for the right hand]

Kir-Abb: Nil: ENil: BARI [sa-'yu "to sip (gruel)": LOAN (expected *tö) from CSud]

1141. *θwáw OR *θwāw "to stiffen, harden, dry up" [root 1139 plus NS *w punc.]

Sah: KANURI sú "to stiffen"

Astab: Nub: DONGOLAWI so:ww- "to dry up"

Kir-Abb: Nil: WNil: OCOLO ṯwow "to dry, stiffen"

Kir-Abb: Nil: PENil: *-toi- "to be dry" [stem plus NS *'y ess.-act.]

1142. *íθ "flow (n.)"

CSud: PCS *θi OR si "liquid, fluid" (juice, sap, etc.)

KUNAMA šida "cool" [stem plus NS *d adj. suff. or NSud *ṯ n./adj. suff.]

SONGAY ísà "river" [stem plus NS *-ah n. deriv. suff.]

Maban: MABA isik "urine" [-k is MABA n. sing. suff.]

Maban: MIMI isi "to urinate"

Kir-Abb: GAAM sáa "beer" [proposed *síá, stem plus NS *-ah n. deriv. suff.]

Kir-Abb: NYIMANG aši, DINIK asɛ "beer" [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: WNil: OCOLO (y)iiṯ "well"

Kir-Abb: Nil: WNil: OCOLO ṯīc "wet" [stem plus NS *ṯʰ adj. suff.]

Kir-Abb: Nil: WNil: OCOLO ṯïw "to pour out" [stem plus NS *w punc. as denom.]

Rub: NYANG'I siu "river" (LOAN from Kir-Abbaian language? Expected *is- ?)] [stem plus NS *w n. deriv. suff.]

Rub: IK ís "flowing water"

See roots 963, 1143, and 1171 for other examples of an apparently regular but environmentally restricted Kir-Abbaian sound shift, *#iC# > *-Ci- (C = [-voice/+obstruent], with addition of any affixation.

1143. *ıθ "how?"

Koman: UDUK sà' << interrogative clitic >> [stem plus NS *-ah n. deriv. suff. (*-isa' reduced to -sà')]

CSu: ECS *θi "how?"

KUNAMA aišino "what?" [NS *a- n. deriv. pref. plus stem plus NS *n n. suff.]

SONGAY síñd "how, as" [stem plus NS *n and NSud *ṯ n./adj. deriv. suff.]

Astab: Nub: DONGOLAWI sai "which?" [stem plus NS *y n. suff.]

Astab: Nub: DONGOLAWI sɛ, isɛ "where, whither?" [*isay, stem plus NS *y- interrog. root (1467)]

Kir-Abb: GAAM īzí "how?" [/isi/: stem converted to NS canonical VCV pron. shape]

Kir-Abb: C.Jebel: MOLO sɛɛn "how?" [structure as in Dongolawi, plus NS *n n./adj. suff]

Kir-Abb: C.Jebel: MOLO siidə "how many?" [stem plus NS *ṯʰ or *ṯ n./adj. suff.]

Rub: IK ìsì "what kind of?"

PROTO-NILO-SAHARAN STEM-INITIAL *θ or *nδ

1144. *θùn OR *nδùn "to burn"

Koman: UDUK šūn "to boil meat, pumpkin; to put inside hot place to bake or roast"

KUNAMA šunda "star" [stem plus NSud *ṯ n. suff.]

Other possible reconstructions: *θūn OR *nδūn.

PROTO-NILO-SAHARAN STEM-INITIAL *s

1145. *saːʼw   "to put together (several)"
CSud: MM: LUGBARA osa "to mix together"   [CSud *V- pref. plus stem]

KUNAMA saw- "to sew and plait things made from
   dum palm"

FOR sawiy- "to join (of rivers, roads)"   [stem plus NS *ʼy ess.-act.]

Astab: Nub: DONGOLAWI saːw "to mingle, mix,
   associate"

1146. *say OR *saːy OR *saʼy   "to be thin"
CSud: PCS *sɛ(sɛ) "small"
Astab: Nub: DONGOLAWI ɛsɛ "thin"   [assim. form of NS *a- n./adj. deriv.
                                      pref. (*a- > *ɛ- /#_Cɛ) plus stem]

Kir-Abb: Nyimang *sɛɲ- "thin" (NYIMANG   [stem plus NS *ɲ n./adj. suff.; Nyi-
   kɛšény, DINIK sónyú)   mang: NS *k adj. affix (k(V)- pref.
                                            as usual in Nyimang) plus root; Di-
                                            nik: root plus NS *-uh n./adj. deriv.
                                            suff. (with regressive V rounding
                                            assim.)]

Kir-Abb: Nyimang *sɛrɛ "short" (NYIMANG   [stem plus NS *r adj. suff.; Dinik: plus
   šɛ̀rɛ̀, DINIK sɛrɛŋáá)   NS *ŋ n./adj. suff.]

1147. *saʼy   "to spill out"
KUNAMA sai-, sei-, seina- "to run out, flow out"   [3rd entry: stem plus NS *n dur.]
Sah: KANURI sàyá "to wash away, erode"   [stem plus NS *-a dispunc.]
Sah: KANURI sàyét "to shake out (dust)" (H)   [stem plus NS *tʰ cont.]
SONGAY sèy "to sow by broadcasting, to pour
   (liquid)"
Kir-Abb: Nil: WNil: OCOLO tay "to scatter, break
   up as of crowd"

1148. *sàːʼy OR *sáːʼy   "to move briskly"
Koman: UDUK sā "to dance"
KUNAMA saika- "to trot"   [stem plus NS *kʰ iter.]
FOR sakk- "to run"   [stem plus NS *kʰ iter., gemin. as in-
                        tens.]

Northern Sudanic innovation: addition of *kʰ iterative with meaning "to take many quick steps."

1149. *sè   "to rise, go up"
Koman: UDUK sē "to rise, climb, go up"
KUNAMA sa- "to broaden, enlarge"   ["rise" > "swell up, become large"]
Sah: KANURI sà "to begin for the first time"   ["rise" > "start up"]
Sah: KANURI sàŋg- "to lift up, start"   [stem plus NS *ŋ punc. plus NS *k
                                          caus.]
Astab: Nub: DILING še "to go (there)"   [NS *s > DILING š]
Astab: Nub: NOBIIN sèyy- "to bring up, raise"   [stem plus NS *-y ess.-act., gemin. as
                                                  extend. action]
Kir-Abb: Nil: WNil: OCOLO tyɛk "to stand some-   [stem plus *k caus.]
   thing up"
Rub: IK isét- "to proceed"   [*i- v. class pref. plus stem plus NS *tʰ
                               cont.]

Rub: IK [ise- "to do first": LOAN (expected *es-)]   [*i- v. class pref. plus stem]

Saharo-Sahelian semantic innovation: shift of meaning from rising in more general senses to get-
ting up in order to start off; hence the idea of beginning or doing something first in the Kanuri and
Ik cases and the idea of going somewhere in the Diling reflex.

1150. *seɗ   "to be strong"
CSud: PCS *se "strong"
KUNAMA [šaki- "to be strong, brave": LOAN from
   unidentified NS language (expected *sag-)]
Astab: Nub: DONGOLAWI ɛsk-, isk- "to be able"
Kir-Abb: GAAM sɛgɛr- "to be strong"   [stem plus NS *r n. suff., with v. as
                                        back-formation < n.]

Kir-Abb: Nil: WNil: OCOLO tɛk "strong, powerful"
Rub: Ik [is "hard, difficult"; is-on "weight; to be
   heavy": LOAN from CSud before *#CV# > Rub
   *#VC#]

1151. *séːkʼ   "sand"
Sah: ZAGHAWA sigge "sand"
Maban: MIMI siki "sand"
Astab: Nub: DONGOLAWI ɛskɛd "loose earth,
   crumbled soil, dust"   [stem plus NS *tʰ or NSud *ṭ n. suff.]
Kir-Abb: C.Jebel: KELO [cɛɛkʸ "sand": LOAN from
   Bertha (expected *sɛɛk-)]
Kir-Abb: BERTHA šéːkʼè "sand"
Kir-Abb: proto-Daju sɘkk- "earth"   [Thelwall 1981 gives *usuke, but all but
                                      one of his cited references better ac-
                                      cord with reconstruction offered
                                      here]

1152. *séyɬ   "to clean"
Koman: UDUK sēlēlásēlēl "clean (of dark objects,
   water, trees)"   [stem plus NS *ɬ n./adj. suff., redup.]
KUNAMA sele- "to sweep, clean"
Sah: KANURI sə́r "to sift"
Astab: Nub: DONGOLAWI sill- "to winnow";
   NOBIIN síllat- "to thresh, winnow"   [gemin. as iter.; Nobiin: plus NS *tʰ
                                          cont.]
Astab: Nub: DONGOLAWI silt- "chaff"   [v. plus NS *tʰ or NSud *ṭ n. suff.]
Kir-Abb: Nil: PWNil *til "clear (of water)"
Kir-Abb: Nil: SNil: Kalenjin tiliːl "clean"   [stem partially redup. or plus NS ɬ n./
                                                adj. suff.]
Rub: IK ɪsííɬ- "to pick out (e.g., grains), sort out"   [*i- v. class pref. plus stem]

Possible Saharo-Sahelian semantic innovation: The Kanuri, Nubian, and Rub reflexes all show an
added specialization of meaning to the cleaning of grain foods (Rub has both the general and spe-
cialized meanings). Nilotic of Kir-Abbaian, on the other hand, seems to have retained only a non-
agricultural meaning.

1153. *sì OR *sìː   "to stab, stick into"
Koman: UDUK sɪ "to plant, sow"
Koman: UDUK sɪ "women's wooden pick"   [n. complement of UDUK v.]
CSud: PCS *si "to stab"
FOR sììt "hole in the ground"   [stem plus probably NS *ʼy ess.-act.
                                  plus NS *tʰ or NSud *ṭ n. suff.]

Possible counter-indicator of Sudanic branch: Uduk and For share a particular semantic narrowing to sticking into the ground that is not found in Central Sudanic. •

1154. *sí "this one"

Koman: Sn Koman *sit^h "person" (OPO sit, KWAMA sita)	[stem plus NS *t^h n. suff.]
Koman: UDUK -san << suffix of immediacy of time or place >>	[stem plus probably NS *n n./adj. suff. substituted for stem-final *i]
CSud: MM: MORU sé "who, whom, what" (rel. pron.)	[stem plus NS *y n./adj. suff. (*s-ay)]
CSud: MANGBETU si, isi "these" (dem. pron.)	
CSud: Bongo-Bagirmi *se "you (pl.)"	[probable *sai, stem plus NS *ai "you (sing.)" (root 1601)]
CSud: WCSud: AJA sisi "he, she, it"	[redup. stem (pre-Aja *#CV# > Aja #CVCV#]
CSud: WCSud: AJA sisin "they"	[3rd sing. pron. plus *n pl. suff.]
KUNAMA assi "here"	[NS *a- n./adj. deriv. pref. plus stem]
KUNAMA -s(u) << 3rd person sing. subj. marker of v. >>	[stem plus *-u pron. sing. marker (affix 67) seen also in suffixed 2nd person sing. marker (root 280)]
Saharan s << 3rd person pl. subj. marker of v. >>	
Sah: KANURI ší "he, she, it"	
Sah: KANURI sa << 3rd person pl. subj. marker of v. >>	[stem plus NS *a pron. pl. affix]
Sah: KANURI nza "their"	[Kanuri initial *N of poss. pron. plus Kanuri 3rd person pl. subj. marker (preceding entry)]
Sah: DAZA, TEDA sən "his, her, its"	[*si plus poss. marker in *n]
Sah: DAZA, TEDA sənto "their"	[sing. 3rd person poss. plus pl. in *t]
FOR asi, PL. asiŋa "time" in expressions of "once," "twice," etc.)	[NS *a- n. deriv. pref. plus stem]
Astab: Taman: TAMA asi/asoŋ "he, she, it"/"they"	[NS *a- n. deriv. pref. plus stem; pl.: sing. plus NS *ŋ pl. suff.]
Astab: Taman: SUNGOR esi/asiŋ "he, she, it"/ "they"	[structure as in TAMA reflex]
Astab: Nub: FADIDJA -san << 3rd person pl. marker >>	[stem plus NS *a pron. pl. affix (as in Kanuri reflex) plus Nubian pron. pl. in *n]
Kir-Abb: proto-Daju *sa "they"	[stem plus NS *a pron. pl., as in Sah.]
Kir-Abb: Daju: SHATT sV- << 3rd person pl. subj. marker >>	
Kir-Abb: Surmic *-sin "this" (MAJANG ɪsin; KWEGU θìnáθìná)	[stem plus NS *n modif. suff.]

Several separate innovations of third person pronouns from *si must be argued for here (see Chapter 8 for discussion of these).

1155. *síːl "strip, thin stick, switch"

Koman: UDUK sílíˀ "sorghum without edible seeds"	[i.e., the stalk alone, lacking proper ear; stem plus NS *-Vh n. deriv. suff.]
KUNAMA šilata "interstice, stripling"	[stem plus NS *t^h n. suff.]
Sah: KANURI šílà "bone"	[stem plus NS *-ah n. deriv. suff.]
SONGAY síllì "thread"	[stem plus NS *-Vh n. deriv. suff.]
Astab: NARA šillado, PL. šillata "wooden arrow stuck in hair as ornament"	[stem plus NS *t^h or *t̪ˀ n. suff.]

Kir-Abb: GAAM səl "smooth bamboo"	
Kir-Abb: GAAM səlū "long tethering rope"	[stem plus NS *-uh n. deriv. suff.]
Kir-Abb: proto-Daju *sitte "rope"	[< *silte, stem plus NS *t^h n. suff.]

See root 1191 for the Gaam vowel shift that is present here.

1156. *sîm "to plait"

CSud: BALEDHA sś "straw bag"	[< PCS *si by regular BALEDHA shift]
KUNAMA šima-, šimito- "to plait string"	[2nd entry; stem plus NS *t^h cont.]
KUNAMA šimita "dum palm string"	[stem plus NS *t^h n. suff.]
Astab: NARA sema "rope, string"	[stem plus NS *-ah n. deriv. suff.?]
Kir-Abb: PNil *tim "hair (of head)" (WNil: OCOLO tyem "cockscomb"; ENil: Ateker *-tim- "hair")	
PRub *sim "string" (IK sɪm)	

Probable Northern Sudanic semantic innovation: A technical narrowing of the verb meaning specifically to the plaiting of string seems present here. Eastern Sahelian innovation: derivation of a noun for "string" from the verb root. The Nilotic meaning then makes sense as a further innovation—a semantic shift from "string" to "hair." The Kunama noun, with its narrower application to a particular kind of string and its different derivational suffixation, appears most probably to be a separate innovation of relatively recent provenance within that language.

1157. *sɪŋk^hw "dust"

Koman: S. KWAMA siŋk "smoke"	
Koman: Gumuz: SESE suŋwa "smoke"	
KUNAMA šiga "mud, mire"	
Sah: KANURI sə́ŋgè "dung (of goats, gazelles)"	[stem plus NS *-eh n. deriv. suff]
FOR siigo "dung"	
Kri-Abb: Nil: PSNil [*sik- "mud (?)" (Kalenjin "dung"; DATOGA "soil, earth"): LOAN from language in which fricatives were preserved and vowel length was not present (expected *tiːk)]	

Koman semantic innovation: "dust" > "dust cloud" > "smoke." Northern Sudanic semantic innovation: A quite different direction of shift, from "dust" > "soil, earth" > "mud" can be proposed to underlie the meanings in the Kunama, Kanuri, For, and borrowed Southern Nilotic forms of the root. Saharo-Sahelian semantic innovation: apparent further shift from "mud" to "dung."

1158. *sôkˀ "to move (intr.)"

Koman: UDUK sôkˀ "to move (intr.)"	
Sah: KANURI sə́gə́p "to shift load on back"	[stem plus NS *p extend.]
Astab: Nub: DONGOLAWI sog "to accompany, go or come with"	
Astab: Nub: DILING šog-ir "to carry away"	[stem plus Nub. *r caus.]
Kir-Abb: proto-Daju *soge "path, road"	
Kir-Abb: Nil: WNil: OCOLO tɔk "absent, not here, gone"	[semantics: "move" > "go away"]

1159. *sópʰ "to dampen"

KUNAMA sabu- "to dip" (in liquid)"	
KUNAMA saboro- "to rinse"	[stem plus NS *r iter.]
Sah: KANURI sə́vú "rain with very little clouding"	[stem plus NS *-uh n. deriv. suff.]
SONGAY súfù "to wet slightly"	[stem plus NS *-uh ven.]
Kir-Abb: NYIMANG [sobâî "to swim": LOAN (expected *sofai), possibly from Nubian?]	[stem plus NS *ˀy ess.-act.]

1160. *sór "to sniff (tr.)"

CSud: PCS *so OR *θo "to savor, sip"

KUNAMA sarka- "to stink" (sarka "stench")   [stem plus NS *kʰ intr.]

Sah: KANURI sə̀rìn "to sniff into nose"   [stem plus NS *ŋ punc.]

Sah: KANURI sə̀rə̀p "to sip (hot drink)"   [stem plus NS *p extend.]

Astab: Nub: DONGOLAWI sorin "nose"   [stem plus apparently NS *ŋ n. suff.; see Nobiin entry (Nobiin loanword in Dongolawi?)]

Astab: Nub: NOBIIN sòrì ŋg "nose"   [stem plus NS *ŋ n. suff.]

Kir-Abb: BERTHA [šóːr- "to breathe, rest": LOAN (expected *šol-)]

1161. *sóːr "to make fun of"

Koman: UDUK sór "to make fun of"

Sah: KANURI súlì "fun, joke"   [stem plus NS *-ih or *-eh n. deriv. suff.]

Kir-Abb: Nil: ENil: MAASAI [-isúr "to speak badly of": LOAN from language in which NS *s > /s/]

Rub: IK isɔrɔt- "to run down"   [*i- v. class pref. plus stem plus NS *tʰ cont.]

1162. *sɔ̃d "to put above"

KUNAMA sorkeka "inaccessible" (as peak)   [stem plus probably NS *kʰ intr. plus NS *k adj. suff.]

SONGAY sòrkù "to hang up, hang something up in a tree or on a wall"   [stem plus NS *kʰ iter. plus NS *-uh ven.]

Kir-Abb: BERTHA šɔ̀rr "sky; up"

Kir-Abb: Nil: SNil: Kalenjin *tɔrɔːr "above, sky"   [stem partially redup.]

Kir-Abbaian innovation: derivation of a word for "sky, above" from the verb root.

1163. *sɔːd "dust"

CSud: PCS *sɔ "sediment"

FOR suru "earth, dust" (B)

Kir-Abb: Daju: NYALA saraine, PL. sarayuge "earth"   [stem plus NS *y n. suff., added since NS *d > Daju *r /_#]

Kir-Abb: PNil *tɔːr "dust, powder" (WNil: JYANG, OCOLO tɔr "dust"; SNil: DATOGA dɛ̀ːrán- "flour" [< PSNil *tɔːr-])   [Datoga reflex: stem plus NS *n n. suff.]

1164. *sóŋ "to bend (intr.)"

KUNAMA soŋa- "to undulate, sway"   [stem plus NS *-a dispunc.?]

SONGAY sóŋkòm "to squat on knees or ankles"   [stem plus NS *kʰ iter. plus NS *m iter. concis.]

Kir-Abb: GAAM kʊsumi "knee"   [NS *kʰ n. pref. plus stem (GAAM /m/ < *ŋ /V_-, V = [+round])]

Kir-Abb: BERTHA [gʊšʊŋ "knee": LOAN from other ESah language (expected *hʊšʊŋ)]   [structure as in Gaam, but lack of [k] in Bertha at time of borrowing caused [k] in loanword to be rendered as /g/]

Kir-Abb: Surmic: S.Surmic *kʊsuŋ "knee" (DM *kɔðɔŋ; ZILMAMU *kušuŋ)   [NS *kʰ n. pref. plus stem]

Kir-Abb: Nil: PSNil *kutuŋ "knee"   [NS *kʰ n. pref. plus stem; NS *ɔ > Nil *ʊ/*u /_ŋ, > *u here by irregular category shift]

PRub [*kutuŋ "knee": LOAN from SNil (shows specifically SNil sound shifts)]

Rub: SOO kɔθɔŋ "thigh"

    [NS *kʰ n. pref. plus stem]

Rub and Kir-Abbaian (Eastern Sahelian) morphological and semantic innovation: derivation of a noun for "knee" by addition of the *kʰ noun prefix to the stem. The meaning of the underlying verb shows that the noun originally must have referred to the knee and that Soo "thigh" thus reflects a shift away from that meaning.

1165. *sú: "juice, fluid part of anything"

Koman: UDUK àsū "beer"   [*a- n. deriv. pref. plus stem]

CSud: PCS *su "fluid" (sap, juice, broth, honey, etc.)

FOR nàásù "honey"   [FOR n- n. sing. marker plus NS *a- n. deriv. pref. plus stem]

Maban: MIMI su "sauce"

Astab: Nub: NOBIIN súú "milk"

Kir-Abb: Nil: WNil: OCOLO tut "pus"   [stem plus NS *tʰ n. suff.]

1166. *súːɗ "to stretch out, lengthen (intr.)"

KUNAMA surkasurka, sukkasukka "height; tall (of man)"   [stem plus NS *k adj. suff., redup.]

Kir-Abb: BERTHA šúːr(i)ŋ- "to stand"   [stem plus NS *ŋ punc.]

Kir-Abb: BERTHA šúːɗí "thin"   [stem plus NS *-ih n./adj. deriv. suff.]

Kir-Abb: ENil: BARI tur-ö "to bloom"

Rub: IK [surusur- "to be slender": LOAN (expected *su'j- or *suz-)]   [redup. stem as adj. with v. < earlier adj.]

1167. *suk "to cook"

KUNAMA suggu- "to boil"   [gemination as iter., i.e., to bubble]

Astab: Nub: DONGOLAWI sug "to bake a kind of flat loaf; the loaf itself"

Kir-Abb: proto-Daju *usukuce "ashes"   [assim. form of NS *o- n. deriv. pref. (*o- > *u /#_CuC) plus stem plus NS *tʰ n. suff. (Daju n. sing.)]

1168. *sùkʰ "to bend"

CSud: PCS *su "to bend, be flexible"

CSud: ECS *osu "bow"   [CSud *V- pref. (NS *o- n. deriv. pref.?) plus stem]

SONGAY súkúm "to fold"   [stem plus NS *m iter. concis.]

Maban: MABA -suk- "to weave"

Kir-Abb: Nil: ENil: BARI tʊg-gʊ "to plait (very close)"

Apparent Sahelian semantic innovation: shift from a more general sense of bending to folding something over something else, with a more specific additional application to plaiting indicated for both of the morphologically unmodified Sahelian attestations (in Maba and Bari).

1169. *sū:l "to be on fire, give off heat"

Koman: UDUK sūl, sūlúɗ "to rise (of sun)"   [2nd form: stem plus NS *l intr.]

Sah: KANURI sùrwá "to be scalded"   [stem plus NS *pʰ extend. intens. or *p extend. plus NS *-a dispunc.]

FOR súúl "smoke"

Kir-Abb: Daju: SHATT asul "flame"   [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Surmic: DM *ɓɔlɔmɔ' "charcoal"

[stem plus NS *m; whether final -ɔ' is 2ndary DM development or < NS *-Vh n. suff. is unclear]

Kir-Abb: Nil: WNil: OCOLO tul "to rise (of sun)"

[loan or semantic influence from Koman]

Kir-Abb: Nil: ENil: TESO e-tulia "soot"

[stem plus NS *'y n. suff.]

Kir-Abb: Nil: ENil: BARI tul- "to burn, be on fire, flash"

Kir-Abb: Nil: ENil: BARI tutul- "to kindle (intr.)"

[partially redup. stem]

1170. *swɪ̄l OR *swɪ̄ɬ "worm, thin strand"

Sah: KANURI sə́llà "tapeworm"

Kir-Abb: NYIMANG sùl "root"

[stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO twil "a kind of larva"

1171. *îs OR *ɪ̄s "skin"

Koman: UDUK ɪ̄s "body, self"

Koman: GULE is "egg"

[semantics: "skin" > "hull, rind, shell" > "egg"; "shell" > "egg" is a common NS linkage: see note to root 71]

CSud: PCS *si "skin"

Astab: Taman: SUNGOR isa "meat"

[stem plus probably NS *a pl. affix ("meat" as grammatically pl. n.)]

Kir-Abb: Daju: SILA siite, PL. siige "bark"

[see also roots 963 and 1142 for other examples of *iC > *Ci in Kir-Abbaian with addition of suff.]

1172. *ū:s OR *ū:s "to be(come) or make useless, ineffective, inoperative"

Koman: UDUK ūs "to go out (fire); to extinguish"

KUNAMA usa "bad luck"

KUNAMA usuŋ- "to be disgusting"

[stem plus probably NS *ŋ adj. suff., with v. by back-formation < adj.]

FOR dusa "tasteless" (B)

[FOR d- n./adj. sing. pref. plus stem plus NS *-ah n./adj. deriv. suff.]

Maban: MABA -us- "to refuse, reject"

Astab: Nub: NOBIIN ùùs "bad"

Kir-Abb: Nil: WNil: OCOLO wudo "to make hole in center of something with idea of spoiling it"

[regular epenthetic initial /w/; WNil /t/ -> [d] /V_V]

PROTO-NILO-SAHARAN STEM-INITIAL *s or *θ

1173. *swé:Ṭ OR *θwé:Ṭ "to whip, strike repeatedly" [Ṭ = ṱ, ṱʰ, or ṱ']

Sah: KANURI sút "to whip, flog"

SONGAY sóotè "to whip, flog"

Astab: Nub: DILING šwad, PL. šwedili "whip"

Kir-Abb: Nil: WNil: NAATH twɪṱ "drumstick"

[< earlier *twɪṱ or *ṱwɪṱ (Naath regular dissim. of 1st of two consecutive dental C]

1174. *ás OR *áθ "to fight, quarrel"

Koman: UDUK ás "to fight"

Sah: KANURI ásə̀m "dispute, quarrel" (ásə́m "to dispute with a person")

[stem plus NS *m n. suff.; v. < n. by tone shift]

PROTO-NILO-SAHARAN STEM-INITIAL *ş

1175. *şā̈k' "to leave"

Koman: UDUK šākāl "to leave quietly, unobserved"

KUNAMA saka- "to abandon, leave, cease"

[stem plus NS *l iter. > extended action]

1176. *şà̈l "to seep"

Koman: Sn Koman *šaliʔ "cloud" (KOMO šɛlli, OPO šali)

[stem plus NS *-ih n. deriv. suff.]

KUNAMA saliŋa "rainbow"

[stem plus NS *ŋ n. suff.]

FOR salal- "to melt"

[partially redup. stem]

Kir-Abb: Surmic: MAJANG salɔ:y "cold"

[stem plus NS *y n./adj. suff.; common African semantics: "wet" > "cold" (from dampness, etc.)]

Kir-Abb: Nil: ENil: MAASAI -šal "to be damp, wet"

Kir-Abb: Nil: ENil: TESO a-calar "to melt, dissolve"

[stem plus Ateker itive]

Kir-Abb: Nil: ENil: BARI [salaŋ-gu "to drip": LOAN from language in which NS *ş > /s/ (expected *jal-)]

[stem plus NS *n dur.]

Possible counterindicator of Northern Sudanic: Koman and Kunama share an application of this root specifically to phenomena accompanying rain.

1177. *şámp "to gather (tr.)"

KUNAMA sambai- "to bring"

Sah: KANURI sáp "to collect, heap up"

SONGAY sámbú "to remove, carry off, take"

[stem plus NS *'y ess.-act.]

[stem plus NS *-uh ven., i.e., < earlier "gather and bring along with one"]

Astab: Nub: DILING šab "to meet"

Kir-Abb: BERTHA θa:m- "to put, hold, keep"

[semantics: to gather, of people]

Kir-Abb: Nil: SNil: Kalenjin [*samac "to collect honey": LOAN from other Kir-Abbaian language (NS *mp > *m, but expected *ca:m), possibly Surmic]

[stem plus NS *ṱ' iter. intens. (> iter.?)]

1178. *şámp' "to hit (person) repeatedly"

Koman: Sn Koman *šap' "to hit" (KOMO šap, KWAMA šəb-)

CSud: MM: LUGBARA sa "to smack, slap face, box ears"

Sah: KANURI sàmbìt "to hit with flat of hand"

[stem plus NS *-i itive plus NS *ṱʰ cont. (as intens. or iter.?)]

Kir-Abb: BERTHA [šap'úθ- "to hit with a stick": LOAN from Koman (expected *θap'-)]

[stem plus NS *θ intens.]

Kir-Abb: Nil: WNil: OCOLO cäp "to kick, stamp"

Rub: IK sáɓ- "to kill (several)"

1179. *ṣéh "straight, even, level"

Koman: UDUK šē' "straight (as of arrowshaft)"
CSud: PCS *ṣɛ(ɛ) "even, level"

KUNAMA sau- "to measure, balance, level, compare" — [stem plus NS *w punc. as deadj.]
KUNAMA sasaume "accurate, equal, level, even" — [v. redup. plus NS *m adj. suff.]
Sah: KANURI sáná "to make level, even" — [stem plus NS *n modif. suff. (added since pre-Kanuri *a > a /_#), with v. < adj. probably by tonal shift]

FOR se "true" (B)
Maban: MABA see, se "true, certain"
Astab: Taman: TAMA sɛyei "truth" — [stem plus NS *y n. suff.]
Kir-Abb: GAAM séé "factual, genuine" — [stem plus probably NS *'y n./adj. suff. (> pre-Gaam *ey > GAAM ee)]
Rub: IK ɛas(éí) "truth, reality" — [Rub ɛ-/e- pref. (variety of *i- v. class pref., as in root 229?), plus NS *a-n. deriv. pref. plus stem plus NS *y n. suff.]

Sahelian semantic innovation: For, Maban, Tama, Gaam, and Ik all show a shift in application of the root from the tangible meaning ("straight, level, even"), seen in each of the non-Sahelian divisions of Nilo-Saharan (Koman, Central Sudanic, Kunama, and Saharan), to its abstract analog ("true"). This root is thus an especially strong piece of the overall evidence for the overall demonstration of the Sahelian group.

1180. *ṣèk OR *ṣèg "to stick into"

KUNAMA sagu- "to fill, stuff, cram"
Astab: Nub: DONGOLAWI šɛg "to implant, insert"
Kir-Abb: GAAM sèè- "to cram (in), fill, jam, stuff"
Kir-Abb: C.Jebel *sig- "to shut" (AKA, MOLO sigin-, KELO siiz-) — [AKA, MOLO: stem plus NS *n dur.; KELO: stem plus NS *s prog. (?), with regular *g > Ø /V_; semantics: close by stopping up]

1181. *ṣeːk' "to shake (tr.)"

Koman: UDUK šēkēm "to sift or shake flour" — [stem plus NS *m iter. concis.]
Koman: UDUK šēkēpšēkēp "jerkily" — [adj. by redup. of stem plus NS *p extend.]

KUNAMA šikki- "to quiver" — [gemin. as iter.]
Astab: Nub: DONGOLAWI [šakk- "to shake (milk) in a skin": LOAN (expected *šɛkk-)]
Kir-Abb: Nil: PSNil [*sac/*sak "to churn milk in a calabash to make ghee": LOAN (expected *ce:k)]
Rub: SOO [θác- "to churn (milk in a calabash)": LOAN from Kalenjin (Pakot?) (expected *θeʄ)]

The trait of churning milk to produce fat in the form of ghee or butter appears from these data to be a subsistence innovation which spread well after livestock raising and milking was fully established among Nilo-Saharan peoples. The vowel outcome of the Dongolawi and Southern Nilotic forms of the root supports the postulation of an ancient and wide diffusionary spread of the root in the meaning "to churn," at or before the proto-Eastern Sahelian period, coming initially from a language in which PNS *e: > *a.

1182. *ṣèṣ "to (try to) talk someone into doing something"

Koman: UDUK šēs gwò "to try to ensnare with talk" (gwò "word")
KUNAMA sasai- "to decoy, entice; to cheat; to lie" — [stem plus NS *'y ess.-act.]
Sah: KANURI sàsà "to calm down (child)" — [stem plus NS *-a dispunc.]
Kir-Abb: Nil: WNil: OCOLO cic "to encourage, bolster up, put up to"
Kir-Abb: Nil: ENil: BARI [sasan-du "to vex, bother, importune": LOAN from language in which NS *ṣ > [s] and *e > a (Daju?)] — [stem plus NS *n dur.]

1183. *ṣéːl "to split (tr.)"

KUNAMA [šilili- "to rend, tear": LOAN (expected *sel-)] — [partially redup. stem as iter.]
Sah: KANURI sál "to cut with ax, chop off grain stalks"
Sah: KANURI sásál "to cut (one thing) into many things" (H) — [partially redup. stem as pluract.]
SONGAY séelè "to cut meat in strips for drying"
Astab: NARA sel "to split, divide"
Kir-Abb: C.Jebel: AKA šɛluk "scar"
Kir-Abb: Nil: WNil: OCOLO cɛl "to cut in small pieces (as meat)" — [stem plus NS *k singul.?]
Kir-Abb: Nil: WNil: TESO -cɪl "to tear, rip"
Kir-Abb: Nil: ENil: BARI jɛ-'ya "to pierce (with splinter)" — [regular Bari /l/ -> Ø /_'y]
Kir-Abb: Nil: ENil: BARI jɛlɛt, PL. jɛlɛsi "splinter" — [stem plus ENil deverb. suff. in *t (NS *tʰ)]
Rub: IK [isésél- "to cut branches into pieces": LOAN (expected *isésɨl-)] — [*i- v. class pref. plus partially redup. stem as iter.]

1184. *ṣéːy "to take a breath, catch one's breath"

Koman: UDUK ší ís "to rest" (ís REFL.)
Koman: UDUK ší'ín "to breathe" — [stem plus (with inserted epenthetic glottal stop) NS *n dur.]
KUNAMA ši- "to rest"
KUNAMA šita- "to breath" — [stem plus NS *tʰ cont.]
Sah: KANURI sèyè "to breathe heavily, pant" — [stem plus NS *'y ess.-act.]
Rub: SOO [is "to be tired": LOAN from Koman or possibly CSud, before #CV# > Rub #VC#]

1185. *ṣèːym "to sniff" [root 1184 plus NS *m iter. concis.]

Koman: UDUK ším "odor, smell"; àšíím "smell" — [2nd shape: NS *a- n. deriv. pref. plus stem]
KUNAMA šimma- "to sniff, smell (tr.)"
KUNAMA šinka- "to smell, sniff"; šinka "smell, odor" — [stem plus NS *kʰ iter.; n. < v.]
FOR símmó "delicious" — [stem plus NS *w n./adj. suff.; gemin. is regular effect in For 2nd C of adj.; semantics: < to smell (good)]
Astab: Nub: NOBIIN šìmm- "to smell, stink" — [gemin. as dur.]
Kir-Abb: Nil: WNil: NAATH ciɛm "to kiss"

1186. *ṣɛ'y   "to bite into"
Koman: Gumuz *se- "to eat" (GUMUZ sɛ, SAI,
    SESE, KOKIT s-)
Koman: GULE si "to drink"
Sah: ZAGHAWA sɛ́- "to eat"
Sah: BERTI sayi- "to eat"
FOR se- "to bite"
Maban: MABA is- "to bite"
Astab: NARA šiti "louse"   [stem plus NS *tʰ n. suff.]
Astab: Taman: SUNGOR šiti "louse"   [stem plus NS *tʰ n. suff.]
Kir-Abb: BERTHA θìŋ- "to eat"   [stem plus NS *ŋ punc.]
Kir-Abb: proto-Daju *si- "to eat"
Kir-Abb: Nil: SNil: Kalenjin [*kɪsaːy "tick": LOAN   [NS *kʰ n. pref. plus stem; semantics:
    (expected *kɪce) from unidentified source]   tick is a biting insect]

The meaning "to bite into" instead of simple "to bite" has been reconstructed because its implication of taking a mouthful of something better allows the variety of meanings taken on by this verb root across the Nilo-Saharan family. Biting rather than eating is also implied by the derived noun for "tooth" in root 1187. Astaboran innovation: derivation of a noun for the biting insect, the louse, from the verb by addition of the Nilo-Saharan noun suffix in *tʰ.

1187. *ṣɛ'yh   "tooth"   [root 1186 plus NS *-Vh n. deriv. suff.]
Koman: Sn Koman *šeʔ "tooth" (UDUK šɛ̃')
Koman: GULE seen "tooth"   [stem plus NS *n n. suff.]
CSud: PCS *ṣe "tooth"

1188. *ṣíɓ OR *ṣíɓ   "to sink down, collapse"
Koman: UDUK šíɓílíɗ "to be wilted"   [stem plus NS *l adj. suff. plus NS *ḷ
    intr. as deadj.]
CSud: PCS *ṣi "to go down"
KUNAMA šišib- "to melt, crumble, crush"   [partially redup. stem]
Sah: ḰANURI sə́p "to lower, bring down, drop"
Kir-Abb: Nil: WNil: OCOLO cɨp "to put, set"

Northern Sudanic semantic innovation: shift of verb from intransitive to transitive application.

1189. *ṣíːḍ   "to twist (tr.)"
Koman: UDUK šíɗ "to tie an animal to a stake"
SONGAY síirí "to be twisted"   [stem plus NS *'y ess.-act.?]
Astab: Nub: DONGOLAWI šiːr "to plait"
Kir-Abb: GAAM siiɫərg "epilepsy"   [stem plus NS *r n. suff. plus GAAM -g
    n. pl. (NS *kʰ)]
Kir-Abb: Nil: ENil: BARI [sɪrɪd-dya "to twist":   [stem plus NS *tʰ cont.]
    LOAN from language in which NS *ṣ > s and *ḍ
    > r /V_]

1190. *ṣíh   "to not function, be(come) useless"
Koman: UDUK ší' "to become bad"
Koman: UDUK ší'ší' "bad, nasty"   [adj. by redup. stem]
Koman: GULE -sɛ'ɛn "bad"   [probable *siʔan, stem plus NS *n
    modif. suff.]
Koman: Gumuz *š- "to die"
SONGAY síi "to not be, not exist"   [stem plus NS *'y ess.-act.]
Astab: NARA si "to kill"

Kir-Abb: BERTHA θíŋ- "to lose"
Kir-Abb: Nil: ENil: MAASAI -ɪš "to end, to die"   [stem plus NS *ŋ punc.]
Rub: IK sí- "to sacrifice goat after someone has died"   [*i- v. class pref. plus stem remnant]

Western Koman semantic innovation: shift of the verb to the sense "to be(come) bad." An old recurrent tendency to apply this root figuratively to dying is widely evident here.

1191. *ṣíl   "to be wet"
Koman: UDUK šílé' "fog"   [stem plus NS *-eh n. deriv. suff.]
Koman: UDUK ašílé' "mist"   [NS *a- n. deriv. pref. plus preceding
    Uduk n.]
KUNAMA: ILIT sulluma "cold"   [*silluma, stem plus *m adj. affix, with
    regressive V assim.]
Kir-Abb: GAAM səli(n) "slimy, slippery"   [stem plus probably NS *'y n./adj. suff.
    (plus NS *n modif. suff.)]
Kir-Abb: GAAM sɔ́ld "ravine"   [stem plus NSud *ṭ n. suff. as sing.
    marker (> d /_#)]
Kir-Abb: BERTHA θélè "river"
Kir-Abb: NYIMANG sil "fresh"
Kir-Abb: Daju: LAGAWA silide "cloud"
Kir-Abb: Nil: ENil: TESO -cɪlʋn akipi "to irrigate"   [stem plus NSud *ṭ n. suff.]
    (akipi "water")   [stem plus Ateker ven.]
Kir-Abb: Nil: ENil: TESO a-cilet "river"   [stem plus ENil *-et deverb. (NS *tʰ)]

Probable Kir-Abbaian semantic innovation: The examples in Gaam, Bertha, and Teso indicate that the verb root took on a subsidiary meaning "to flow" in their common ancestor langauge. Jebel phonological innovation: Bertha shares the shift seen in other examples in Gaam of NS *i > *ɛ /#S_I-#, S = sibilant (after which *ɛ > Gaam /ə/; see Gaam reflex also in #1155 above). Jebel innovation: shared derivation in Bertha and Gaam of a noun for "stream" or "streambed."

1192. *ṣíl   "to heat"
Koman: UDUK šíl "to heat liquid with hot stones"
CSud: PCS *ṣi "to heat"
KUNAMA šilo- "to blaze, throw out tongues of fire
    and smoke"
Kir-Abb: Surmic: S.Surmic: ZILMAMU šɪlui   [stem plus NS *'yˑn. suff.]
    "smoke"
Kir-Abb: Nil: ENil: BARI [sɪsɪ "to simmer": LOAN   [redup. stem as iter.]
    from CSud]

Apparent Northern Sudanic semantic innovation: A shift in meaning of the verb from the transitive sense "to heat" to the intransitive sense "to give off heat, flame, smoke, etc. (of fire)" can be seen to underlie the meanings of the Kunama and Surmic reflexes.

1193. *ṣòːd   "to descend, sink"
Koman: UDUK šũrr tūkʰũɓ "to jump from a height"   [probably < *surur, partially redup.
    (tūkʰũɓ: see root 786 above)w   stem; unexpected *o > /u/ is
    probable regressive assim. to Vs of
    2nd element]
KUNAMA surku- "to go down"   [stem plus NS *kʰ iter (as dur.)]
SONGAY sòròndóŋ "to fall, tumble"   [stem plus NS *n dur. plus NS *ŋ punc.
    (*n > nd /CV_VN)]
Maban: MABA -sur- "to descend"
Kir-Abb: Nil: ENil: BARI jɔrɔd-dya "to sink (of   [stem plus NS *tʰ cont.]
    soil)"

Kir-Abb: Nil: ENil: BARI [sɔsɔr "to set (sun, moon, star)": LOAN from language in which *ṣ > *s]   [partially redup. stem]

Kir-Abb: Nil: SNil: NANDI cor "to descend"   [presumed *coːr, but taken from source that does not distinguish V length]

1194. *ṣóm "to move close together, bring into contact"

Koman: UDUK šóm pʼén "to build wall with grass to protect from rain" (pʼén "down")

Koman: UDUK šóm ɩ̄s "to contract, shrink, press into container, contract as of elastic or blood leech, stand close together in group" (ɩ̄s REFL.)

KUNAMA sama- "to compare"   [semantics: compare by setting side by side]

SONGAY sóm "to hit in flinging the arm"

Kir-Abb: Nil: ENil: TESO -cɔm "to thresh"

Kir-Abb: Nil: ENil: BARI [sɔm-ba "to gather, assemble": LOAN (expected *jɔm-), probably from Koman (see 2nd Uduk entry)]

Rub: IK [ɩtsóm- "stampfen": LOAN from Ateker (NS *ṣ > IK s /#_V, not [ts])]

Sahelian semantic innovation: The Songay and the non-borrowed reflex in Eastern Nilotic (in Teso) attest a refocus of the verb's scope of reference, from general bringing into contact to only more forceful encounters, i.e., colliding with.

1195. *ṣoŋ "strand, strip"

KUNAMA saŋala "small strings for attaching light loads to the carrying pole that is balanced on the shoulders"   [stem plus NS *l or *l̩ n. suff.]

Maban: MABA soŋok, PL. soŋo "tree, wood"

Kir-Abb: Nil: WNil: OCOLO coŋ "backbone; chaff"

The meaning as reconstructed here for this root implies a Sahelian semantic innovation, a shift from the meaning "strand" to "stalk," with Maba showing a further shift to "pole, stick" and thence to "tree, wood." An earlier sense "stalk" explains both the Ocolo meanings, "chaff" as materials including grainstalk fragments and "backbone" as metaphorically the "stalk" of the back. An alternative reconstruction of an original meaning "stalk," with the Kunama sense deriving via the sequence "stalk" > "fiber (from stalk)" > "string (made from fiber)" seems also plausible, however.

1196. *ṣór "to move (intr.)"

Koman: UDUK šór ɩ̄s "to move nearer (of body); to move chair, etc." (ɩ̄s REFL.)

Koman: UDUK šóšōr pʼén ácʼéš "to wiggle oneself without getting up, to crawl, to hitch sideways" (pʼén "down"; ácʼéš "under")   [partially redup. stem]

KUNAMA sari- "to step aside"   [stem plus NS -i itive?]

Sah: KANURI sərát "to stroll, walk along"   [stem plus NS *tʰ cont.]

Northern Sudanic semantic innovation: narrowing of meaning to movement involving stepping.

1197. *ṣòːr "to be slight, light (in weight)"

KUNAMA suruta "slender, lean"   [stem plus NS *tʰ n./adj. suff.]

Astab: Nub: DONGOLAWI šoːro "light; nimble, quick"   [stem plus NS *-Vh n./adj. deriv. suff.]

Kir-Abb: NYIMANG sóɽì "youth"   [stem plus NS *-ih or *-eh n. suff.]

Kir-Abb: Nil: PSNil [*soːrɛl "person or animal that has not yet produced offspring": LOAN, probably from Rub (expected *coːr)]   [stem plus NS *l n. suff.; semantics: see Ik entry]

Rub: IK soreɩ́m, PL. sore "boy"   [stem plus NS *-eh n. deriv. suff.; semantics: immature person, thus still small and light in weight]

Rub: IK [surusur- "to be slender": LOAN (expected *sorosor-)]   [redup. stem as adj., then later > v.?]

Eastern Sahelian innovation: derivation of a noun for "young person" from the verb by addition of the Nilo-Saharan noun suffix in *-eh.

1198. *ṣóːh OR *ṣɔ́ːh "many, much"

Sah: KANURI -só << noun collective suffix >>

FOR sòŋŋá "much, many"   [stem plus NS *ŋ n./adj. suff. plus NS *-ah n./adj. deriv. suff.; gemin. of 2nd C is regular feature in For adj.]

Kir-Abb: PNil *caːŋ "much, many" (PSNil *caːŋ; WNil: MABAAN cəŋcəŋ)

Sahelian morphological innovation: *ṣóːhaŋ, stem plus Nilo-Saharan noun/adjective suffix in *ŋ. The root is reconstructed with final *h to account for the alternative vowel coalescences seen in the For and Southern Nilotic reflexes. If *h were not present, the addition of the suffix in *ŋ could be expected to produce *ṣoːŋ, which would have yielded Southern Nilotic *coːŋ instead of the actually attested *caːŋ.

1199. *ṣɔ́l OR *ṣɔ́ːl "to dissolve, turn to liquid"

KUNAMA sollo- "to drool; to soften"

Kir-Abb: NYIMANG soli "sweat"

Kir-Abb: Nil: ENil: MAASAI *-šol "to melt"   [stem plus NS *-ih n. deriv. suff.?]

Other possible reconstructions: *ṣɔl or *ṣɔːl.

1200. *ṣɔ́ːl "to arrange, put in order"

CSud: BALEDHA cŏ "exact, straight"   [CSud *ṣ > BALEDHA c; rising tone implies earlier *VCV shape, CSud *V- pref. plus stem]

KUNAMA sololo- "to put in line, stand in line"   [partially redup. stem (multiple objects)]

SONGAY sòolù "to make (preparations)"   [stem plus NS *-uh ven.]

SONGAY sóolóm "to choose the fat, leave the lean"   [stem plus NS *m iter. concis.]

Kir-Abb: NYIMANG kasol "true"   [NS *k adj. affix plus stem (> prefixed as usual in Nyimang)]

1201. *ṣú "to lead off, start off"

Koman: UDUK šú bwày "to lead a file of people, to show the way by going ahead" (bwày "way")

Kir-Abb: GAAM súɩ́d- "to send dog for game, stir up dog"   [stem (plus NS *-i itive?) plus NS *t̪ /*t̪' caus.]

Rub: IK sut- "to come to get something"   [stem plus NS *tʰ cont.]

1202. *ṣúɓ "to appear, emerge into view"

Koman: UDUK šúɓ "to have a dream, to dream"   [semantics: dream as a visionary experience]

SONGAY súbà "tomorrow"   [stem plus NS *-ah n. deriv. suff.; semantics: from rising of sun at start of a new day]

SONGAY súsúbéy "morning"

[partially redup. stem plus NS *y n. suff.; semantics: see previous entry]

Maban: MABA subu "dawn"

[stem plus NS *-Vh n. deriv. suff.; semantics: see Songay entries]

Kir-Abb: Nil: WNil: OCOLO cwɔ̃p "to appear, suddenly become known"

Evidence for a Songay-Maban subgroup of Sahelian: The Songay and Maba reflexes attest a shared narrowing of the underlying verb root to a particular kind of appearing, the rising of the sun. For other strong evidence supporting this subgroup, see roots 57 and 1518.

1203. *ṣū:ɗ "intestines"

Sah: KANURI súró "belly"
FOR súúr "body"

[stem plus NS *w n. suff. (*-aw)]

Kir-Abb: Nil: WNil: NAATH cuɔt "large intestine"

Rub: IK súɗ "the lowest rib"

[Heine 1983 typescript, "The Ik Language," as cited here, has high tone; Heine 1999 gives low tone in the sing.]

1204. *ṣuh OR *ṣu:h "vein, tendon"

Koman: UDUK àšú' "bowstring; vein or artery"

[NS *a- n. pref. plus stem]

CSud: ECS *ṣu "vein, tendon" (BALEDHA "long hair"; MM "vein, sinew"; MANGBETU "threadworm")

1205. *ṣú:k "to drive (animals)" [root 1201 plus NS *k caus.]

KUNAMA sugune- "to cultivate, to raise animals"

[stem plus NS *n dur. or *n n. suff. with v. by back-formation < n.; semantics: generalization of root to all food-producing activities]

Sah: KANURI sùk "to drive (many things), to speed horse"

Astab: Nub: DONGOLAWI šu:g "to drive along, off"

This root is reconstructed with stem-final *k (rather than alternatively possible *g or *ɟ) because it is transparently derivable from root 1200 by addition of the Nilo-Saharan *k causative]

1206. *ṣúḷ "to leak out"

Koman: UDUK šúɗí 'ē "to leak, be punctured" (ē "amid")

[stem plus UDUK -i itive plus adverbial (epenthetic glottal stop between V's)]

FOR sul "smell of body" (B)
FOR sulum "sweat"

[stem plus NS *m n. suff.]

Kir-Abb: Surmic: DM: DIDINGA [ðɔllɔ "urine": LOAN (expected *ðurɔ or *ðɔrɔ)]

[stem plus NS *w n. suff.?]

1207. *ṣú:m "to put together"

Koman: UDUK šúm "to tuck in (as shirt into pants)"

Koman: UDUK šúmún kī īs "to be close together, no room between" (kī "by"; īs REFL).

[stem plus NS *n dur.]

CSud: PCS *ṣu "to meet"

KUNAMA summa- "to assemble, gather together, add, join (tr.)"

[gemin. as iter.]

Kir-Abb: Nil: ENil: BARI jumökin "to crowd (over a corpse)"

[stem plus ENil benef.]

1208. *ṣup OR *ṣu:p "to yell, cry or call out"

Koman: UDUK šúpūtʰ "male breeding cry"
KUNAMA suburu- "to make a noise"

[stem plus NS *tʰ n. suff.]
[stem plus NS *r iter.]

1209. *ṣū:tʰ "to remove by lifting off"

Sah: KANURI sút "to lift up off"
Astab: NARA sut "to pull off"
Kir-Abb: Nil: WNil: OCOLO cwɔ̃t "mulley cow"

[semantics: having horns removed or lacking]

Kir-Abb: Nil: SNil *cu:t "to take off" (DATOGA *su:d "to take off"; Kalenjin *cu:t "to pull, drag along")

Kir-Abb: Nil: SNil: Kalenjin [*sut "to lift": LOAN from Rub (expected *cu:t)]

PRub *ṣut "to lift off" (SOO ṣut "to lift off"; IK ɩsut "to remove")

[IK: *i- v. class pref. plus stem]

1210. *ṣwēl "to be black"

Koman: S. KWAMA ašwala' "black"

[NS *a- n./adj. deriv. pref. plus stem plus NS *-Vh n./adj. deriv. suff.]

KUNAMA sula "brown"
Sah: KANURI sɔ́lɔ́m "black"
Kir-Abb: NYIMANG susul "ideophone of blackness"
Kir-Abb: Surmic: DM [*-col- "black" (MURLE ocoli, DIDINGA culwak): LOAN (expected *s or *š instead of *c)]

[stem plus NS *m adj. suff.]
[partially redup. stem]
[Murle: NS *o- n./adj. deriv. pref. plus stem]

Kir-Abb: Nil: PWNil [*col "black": LOAN (expected *cwel)]

The Nilotic and Surmic entries may reflect a single borrowing dating to proto-Surma-Nilotic.

1211. *ṣwɛ́ "to burn (intr.)"

Koman: UDUK šwá "to burn (intr.)"
Koman: UDUK šwáɗ "ten to eleven, midmorning (of sun)"

[stem plus NS *ḷ n. suff.]

CSud: PCS *ṣo "to light, kindle"
Sah: KANURI [sòsò "to burn": LOAN, probably from WCSud]

[redup. stem]

FOR su- "to burn"
Maban: MIMI sou "fire"

[probable *su, with French orthography for /u/]

Kir-Abb: BERTHA θú:s'- "to ignite"
Kir-Abb: NYIMANG swi "to burn (tr.)"
Kir-Abb: Surmic: S.Surmic: KWEGU suš- "to burn (tr.)"

[stem plus NS *t' iter. intens.]
[stem plus NS *ṣ caus.]

Kir-Abb: Surmic: SWSurmic šu(š)- "sun"
Kir-Abb: Nil: WNil: NAATH cuɛt "ray, beam"
Kir-Abb: Nil: WNil: NAATH [cuat "to start fire": LOAN (expected *cwɛt), probably from Koman]

[stem plus NS *ṣ n. suff.]
[stem plus NSud *t̪ n. suff.]
[stem plus NS *t̪ caus.]

Kir-Abb: Nil: ENil: TESO cwɛ "to burn (tr.)"
Kir-Abb: Nil: ENil: BARI [sɔ-ja "to stew, boil (tr.)": LOAN (expected *jö-), probably from CSud]

Kir-Abb: SNil: Kalenjin [*su:s "to roast": LOAN from Surmic]

[see Kwegu entry above for structure]

1212. *ṣwíl "to put together parts in fashioning, especially tool"

Koman: UDUK šíl "to put handle on hoe"

CSud: ECS *ṣi "to make"

Sah: KANURI sállá "to sharpen"   [stem plus NS *-a dispunc.]

FOR síllà "sharp"   [probable loan from Saharan language: see notes to this root]

Kir-Abb: GAAM síl- "to build, pound"

Kir-Abb: Nil: WNil: OCOLO [cwil "to wedge (as handle to blade)": LOAN (expected *cwïl)]   [semantic fit suggests this form to be a loan from a Koman language]

Kir-Abb: Nil: ENil: BARI ju' "to joint"   [regular Bari /l/ > ['] /_#]

Kir-Abb: Nil: ENil: BARI ju'-ya "to join by ends"

Kir-Abb: Nil: ENil: BARI tɔju'/tɔju'-yo "to join (by knots)/to join (pieces of iron)"   [ENil *t- caus. (NS *ṭ) plus stem]

Kir-Abb: Nil: ENil: BARI tɔjulɛt "joint"   [previous Bari v. plus stem plus ENil *-et deverb. suff.]

1213. *i:ṣ "to lie" (position)

Koman: Sn Koman iš "to sleep" (UDUK íš)

Koman: Gumuz iš "to sit"

Maban: MABA iše "night"   [stem plus NS *-eh n. deriv. suff.; semantics: time for sleeping]

Astab: NARA kiše, kišne "night"   [NS *kʰ n. pref. plus stem plus NS *-eh n. deriv. suff. (plus NS *n n. suff.)]

Astab: Nub: DONGOLAWI išk- "to sit"   [stem plus NS *kʰ iter. (as dur.)]

Kir-Abb: proto-Daju *iš- "to stand"

Kir-Abb: Nil: ENil: MAASAI -išu "to live"   [stem plus Maa *-u ven. (NS *-uh)]

Probable Sahelian morphological cum semantic innovation: derivation of a proto-Sahelian word for "night" *i:ṣeh, seen in Maba and Nara reflexes, by adding the *-eh noun deriving suffix to the verb in the sense "to lie" or "to sleep." The identity of the first layer of derivational morphology in this case (*-eh suffix) indicates that most probably a single innovation is to be postulated. The verb attestations in Astaboran and Kir-Abbaian show a shared Eastern Sahelian semantic shift, from the sense "to lie (down)" seen in the derived noun for "night," to a more general sense "to stay in a place." The Gumuz usage of the root for "to sit" can be considered a separate, though partially parallel semantic development.

PROTO-NILO-SAHARAN STEM-INITIAL *ṣ or *s

1214. *ṣɛ OR *sɛ: "grass"

CSud: ECS *ṣɛ OR *sɛ OR *θɛ "grass"

KUNAMA sena "grass, fodder, hay"   [stem plus NS *n n. suff.]

Sah: KANURI šeše "grass with tasseled top, used for horses"   [redup. stem (/s/ -> [š] /_e_e)]

Kunama recurrently adds the Nilo-Saharan noun suffix in *n to Nilo-Saharan noun roots that had the shape #CV# (or developed that shape in the course of Kunama's phonological evolution), e.g., root 1114 among others in this dictionary. Apparent Northern Sudanic semantic innovation: narrowing of the application of this root to grass fed to domestic animals. It can be proposed to have been replaced as the general word for "grass" in Northern Sudanic by *t'eypʰ (root 851).

PROTO-NILO-SAHARAN STEM-INITIAL *z

1215. *zá / *zè "someone/something"

Koman: UDUK -se IN yáásē "this one (pron.)"   [*ya-ese, dem. root 1468, plus 2nd stem in common NS *VCV pron. shape]

CSud: PCS *za "animal, meat"   ["somebody" > "living being" > "body, meat"]

CSud: PCS *ze "another (indef. pron.)"

CSud: Bongo-Bagirmi *ze "we"   [possible *zea > *ze, PCS indef. pron. base *ze plus *ah 1st person root (1583)?]

Kir-Abb: GAAM jaam "somebody, someone"   [1st stem plus NS *m n. suff.]

Kir-Abb: GAAM jáá, jê(n), PL. jóg "person"   [sing: 1st stem plus NS *y n. suff. (plus NS *n n. suff.)]

Kir-Abb: GAAM jè(n), PL. jèg "thing"   [2nd stem plus NS *y n. suff.: *Cey > Ce(e) in Gaam]

Kir-Abb: Nil: proto-Luo *ḍan "person"   [1st stem plus NS *n n. suff.]

Rub: Wn Rub *esin "others" (suppl. pl.)   [2nd stem plus pl. in *n added since NS *#CV# > Rub *#VC#]

Rub: IK saa "other"   [1st stem plus NS *-Vh n./adj. deriv. suff.]

Rub: IK sɛat° "nothing, anything"   [2nd stem plus NS *tʰ n. suff.]

1216. *zá "to hit repeatedly"

Sah: KANURI zá "to beat, spear"

SONGAY sáŋ "to slap"   [stem plus NS *ŋ punc.]

Kir-Abb: GAAM jáá- "to knead"   [stem plus possibly NS *kʰ iter. (*kʰ > Gaam Ø /V_)]

Kir-Abb: Nil: ENil: TESO -da "to lash, flog, thrash"   [stem plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI ɗat "to harden floor by beating"

Kir-Abb: Nil: ENil: BARI ɗaɗat "to beat by slapping"   [stem plus NS *tʰ cont., redup. as iter.]

Kir-Abb: Nil: ENil: MAASAI -dám "to slap"; PARAKUYU ol-dam "drum"   [stem plus NS *m iter. concis.]

1217. *zá: "young, immature"

CSud: PCS *za "young, weak, immature"

Sah: KANURI záíró "any male between ages of 15 and 30"   [stem plus ND *d adj. suff. (?) (i.e., "young"?) plus NS *w n. deriv. suff.]

Kir-Abb: GAAM jáá, PL. jáálge "boy, son"   [apparent *jaała, stem plus NS *ł n. suff., with same morphophonemic voicing of *ł /V_V# as in root 378]

Kir-Abb: BERTHA (M) zɔ̀zɔ̀, (F) sɔ̀:sɔ̀ "weak"   [stem plus NS *w n./adj. suff. (*zaw), redup.]

1218. *zà:m OR *zá:m "to behave foolishly"

CSud: MM: LUGBARA āzā "weak-mindedness, idiocy"   [CSud *V- pref. (here < NS *a- n. deriv. pref.?) plus stem]

SONGAY sàamó "stupid person, fool"

Astab: Nub: DONGOLAWI sa:m "to get drunk"

Kir-Abb: Nil: WNil: NAATH ɖam ɖam "nonsense; idle"   [adj. by redup. stem]

1219. *zél   "to reach out (for)"

SONGAY séllé "to reach (out to give), to offer"
Kir-Abb: GAAM jɛ́l- "to get back bridewealth"
Kir-Abb: Nil: WNil: NAATH ɖiɛl "to return to place of, return with"

Kir-Abbaian semantic innovation: shift in the focus of action of the verb from a movement toward with the goal of obtaining or offering, to a movement toward the original donor seen in the Gaam and Nilotic reflexes.

1220. *zénd   "to have difficulty doing, be slow in doing"

Koman: UDUK sīɖú' "to be delayed, stay longer"   [stem plus NS *-uh ven. added since *nd > UDUK ɖ/_#]

Koman: UDUK sīɗásíɗ "difficult"   [adj. by redup. stem]
CSud: PCS *ze "to be weak, slow"
KUNAMA [senne- "to feel difficulty in doing a desired thing; to be late": LOAN (expected *sad-)]
SONGAY séndí "to be difficult, laborious, dear"   [stem plus NS *'y ess.-act.]

1221. *zèr   "to put in line, put in order"

Koman: UDUK sēlēlásēlēl "straight (of poles, wood)"   [< *serel-, stem plus NS *l n./adj. suff. (*r > l regressive assim.), redup., as typically in Uduk adj. formation]

KUNAMA sali-, sari- "to put in order, put in a row, compare, make equal"
Sah: KANURI [sàr, sàrè "to line up, order": LOAN from language in which NS *z > s (Songay-related?)]
SONGAY séséré "to put in line (of people)"   [partially redup. stem as pluract.]
Maban: MABA serr "just, equitable, fair"
Astab: Nub: DONGOLAWI sɛre "good, fair"   [stem plus NS *y or *-Vh n./adj. deriv. suff.]
Kir-Abb: GAAM jɛrɛd "even, level"   [stem plus NSud *ʈ n./adj. suff.]
Kir-Abb: Daju: NYALA šeedi "good, beautiful"   [probable earlier *šerd-, stem plus NSud *ʈ n./adj. suff., as in Gaam]

Rub: IK isérér- "to be upright, straight"   [partially redup. stem]

Sahelian semantic innovation: A taking on by the simple, unextended verb root of the metaphorical meaning "to make just, fair" is required by the derived adjectives of Maban, Nubian, and Daju (Nyala).

1222. *zèh OR *zè:h   "small of back"

Koman: UDUK sē' "small of back"
CSud: ECS *ze "waist, loins"

1223. *zèm   "to be(come) damp, moist"

CSud: PCS *ze "to be damp, moist"
Sah: KANURI zázám "to dampen shaking water from hand"   [partially redup. stem as iter.]
Sah: KANURI zàmzàm "to drip out onto" (H)   [redup. stem as iter.]
Sah: KANURI zàmzàmíyà "leather bottle-shaped water vessel for journeys"   [redup. stem plus *'y n. suff.]

1224. *zík[h]   "to watch"

CSud: PCS *zi "to watch over carefully"
KUNAMA šiki- "to delay"
Sah: KANURI zágórən "to wait expectantly"   [semantics: "watch" > "wait" > "delay"] [stem plus NS *r iter. plus NS *n dur.]
Kir-Abb: BERTHA (M) zí:, (F) sí: "alive"   [probable *zihi, stem plus NS *'y n./ adj. deriv. suff.; NS *k[h] > BERTHA h > Ø /V_V#; semantics: "wait" > "stay" > "live"]

A Northern Sudanic semantic innovation, "watch" > "wait," must be postulated here. This conclusion follows from the fact that the normal direction of meaning shift in a semantic set of this composition is from the action of watching to its implied concomitant, waiting, a meaning directed attested here in Kunama and Kanuri and underlying the Bertha usage.

1225. *zim OR *zi:m   "stomach" (internal organ)

CSud: ECS *zi "stomach"
Astab: NARA ɛsma "heart"   [NS *a- n. deriv. pref. (with fronting assim.: *asim- > *esim- > *esm-) plus stem]
Kir-Abb: West Daju *šime "belly"

1226. *zìm   "to mumble"

Sah: KANURI zə̀m "to hum, groan"
Kir-Abb: Nil: WNil: OCOLO ɖyem "to mumble, talk in one's sleep or when out of one's head"

1227. *zìmàh   "joint (of body)"   [root 1225 plus NS *-ah n. deriv. suff.]

Koman: UDUK sīmā', àsīmā' "bone"   [(NS *a- n. deriv. pref. plus)]
CSud: PCS *zi "hand"
KUNAMA šima "tail"
Astab: Nub: DONGOLAWI osmar "shoulder"   [NS *o- n. deriv. pref. plus stem plus NS *r n. suff.]
Astab: Nub: NOBIIN ésmár "shoulder"   [structure as in Dongolawi reflex; fronting of initial V remains to be explained, however]
Kir-Abb: proto-Daju šimind- "knee"
Rub: SOO θìmà', PL. θìmàut "finger, toe"   [stem plus NS *n and *t[h] or *ʈ n. suff.]

The derivation of this root from root 1225 suggests that that underlying root originally applied in pre-proto-Nilo-Saharan to the body as a whole.

1228. *zó: OR *zó:h   "to push"

Sah: KANURI zú "to push"
Kir-Abb: Nil: ENil: MAASAI -dotú "to pull out"   [stem plus MAASAI -tú conversive ext. (see also root 1303 below for this ext.: probable composition, NS *t[h] cont. plus NS *-uh (ENil *-u) ven.]

1229. *zók[h]   "to roast"

CSud: PCS *zo "to roast"
SONGAY sókù "to cook whole grain"   [stem plus NS *-uh ven.]
Kir-Abb: GAAM jɔ̀ɔn- "to roast"   [stem plus NS *n dur.]

1230. *zók[h]   "to trot"

KUNAMA sagu- "to trot"

Sah: KANURI zògzòg "to jog, run slowly, trot" [redup. stem as iter.]
SONGAY sòkù "to trot" [stem plus NS *w punc.?]
Kir-Abb: GAAM jògá "pace, step, stride" [stem plus NS *-ah n. deriv. suff.]
Kir-Abb: Surmic: SWSurmic *jagar- "foot" [stem plus NS *ḷ n. suff.]
Rub: Ik sɔk "foot of animal"

1231. *zó:l "to rise"

KUNAMA sule- "to rise"
Sah: KANURI zál "ideophone of popping or jumping out suddenly"
Sah: KANURI [zól "ideophone of jutting or sticking up": LOAN from language in which NS *o: > *o)]
FOR zòòù "hump of camel or cow"
Astab: Nub: DONGOLAWI soll- "to become suspended, hang"
Kir-Abb: C.Jebel *kɔjʊl- "horn" (AKA kɔsʊlge, PL. [NS *kʰ n. pref. plus stem; for corre-
kɔsʊʊli; MOLO kʊdʊl; KELO kʊsʊltə) spondences of C.Jebel *j, see also
roots 670 and 903; semantics: horn
is something that sticks up]
Kir-Abb: BERTHA (M) àzò:là, (F) àsò:là "hill" [NS *a- n. deriv. pref. plus stem]
Kir-Abb: Nil: WNil: OCOLO ḍol "welt"

1232. *zóŋkʰ "to raise, lift"

CSud: PCS *zɔ "to ascend; to raise"
KUNAMA sugu-, suku- "to raise, lift"
KUNAMA [sonkol- "to hang up": LOAN (from [stem plus NS *l iter.]
Nara?)]
Sah: KANURI zògór "to carry (something) swinging [stem plus NS *r iter.]
in the hand"
Astab: NARA songi "to take, carry"
Astab: Nub: DONGOLAWI sokkɛ "to take up, pick [stem plus NS *'y ess.-act]
up, raise, lift, carry"
Kir-Abb: GAAM jùùd, PL. jùùg "sprout" [semantics: < "to rise, swell (of bud)"]
Kir-Abb: PNil *ḍok "to lift" (WNil: OCOLO *ḍok
"to lift something"; ENil: BARI ɗog-gu "to carry")

1233. *zoṭ' "to cram together, put many in one place"

Koman: UDUK sūc' "much, large amount"
CSud: MM: LUGBARA zóró "crammed full" (of [stem plus CSud *-rV modif. suff. (NS
recepticle)" *r)]
KUNAMA sassa- "to be dense, thick (plants, grass, [assim. of proposed earlier *sat-s-, stem
fruit, etc.)" plus NS *s prog.]
Kir-Abb: Nil: WNil: NAATH ḍoc "to push or crowd
against; entirely full"

1234. *zukʰ "fur"

CSud: PCS *zu "fur"
KUNAMA sakama "fuzz, down" [stem plus NS *m n. suff. (*sukam-),
with apparent regressive V assim.]
Astab: Taman: SUNGOR sigit "hair (of head)" [stem plus NS *tʰ suff.; with regressive
V assim. (< *sugit)]
Astab: Nub: NOBIIN šìgírtí "hair (of head)" [stem plus NS *r and *tʰ n. suff., with
regressive V assim. (< *šugirti)]

Astab: Nub: DILING šuki "tuft of hair"
Kir-Abb: GAAM [suud "fur, hair, wool": LOAN < [stem plus NSud *ṭ n. suff.]
language in which NS z > s (expected *juud)]
Kir-Abb: GAAM [sūgūr "pubic hair": LOAN (expec- [stem plus NS *r n. suff.]
ted *jugur or *juur): see previous Gaam entry]
Rub: PRub [*tuk "feather": LOAN from early SNil
(NS *z > *t only in PSNil; not found in extant
SNil languages, however]

Western Astaboran semantic innovation: application of this root to "hair (of the head)."

1235. *zúp' "to flow out"

KUNAMA suba "river"
SONGAY súbbúkù "to give enema" [stem plus NS *kʰ iter.]
Kir-Abb: GAAM jubug "sound of walking in water" [stem plus NS *kʰ iter.]
Kir-Abb: Nil: ENil: MAASAI -dúp "to purge"

Sahelian semantic innovation: The unextended reflexes in both Songay reflex and Nilotic share a
meaning shift to the transitive and specialized sense of causing fluid to flow out of the body.

1236. *zû:r "to move abruptly or suddenly"

Sah: KANURI zùr "to buck (horse); to leap upon"
Sah: KANURI zùrtɔk "to disappear (escape) in a [stem plus NS *tʰ cont. plus NS *k in-
crowd" tens.]
Astab: Nub: DONGOLAWI sursukk- "to stagger, [*sursurk-, redup. stem plus NS *kʰ
stumble" iter.]
Kir-Abb: Nil: WNil: OCOLO ḍur "to push, shove" [shift from intr. to tr. action]

1237. *ɔ́:z OR *ɔ:z "forearm"

Sah: KANURI zâ "length of measure from elbow to
tip of middle finger" (cubit)
FOR óóz "five"

Astab: Nub: DONGOLAWI oss- "leg, foot" [semantics: "forearm" > "hand" > "five"
Kir-Abb: Surmic: S.Surmic *jo "foot/leg" (number of fingers of one hand)]
(KWEGU jo; ZILMAMU šo; MURLE ɗɔ:)
Rub: SOO [ót, PL. ótèk "forearm": LOAN possibly
from early SNil (NS *z > *t only in PSNil); not
found in the extant SNil languages, however]

Eastern Sahelian semantic innovation: extension of the application of this root to the leg. If the
Rub word is indeed, as it appears, an early Southern Nilotic loanword, either the root came in
Eastern Sahelian to apply to the lower parts of both the leg and the arm, or Surmic and Nubian
show a parallel shift of reference from one limb to the other.

PROTO-NILO-SAHARAN STEM-INITIAL *z or *s

1238. *zé:ɗ OR *sé:ɗ "to bubble up, foam, froth"

Koman: UDUK séɗ "to swell as beer"
Koman: UDUK séɗ kā gàbùšà' "to boil rapidly"
(kā gàbùšà' "with rapidity")
KUNAMA širi- "to boil, ferment"

1239. *zék' OR *sék'   "to scratch, scrape, pierce (skin, etc.)"

Koman: UDUK sék' "to cut self, scarify, lance"
KUNAMA saki- "to rub, hit to remove dirt"
Maban: MABA sek-aroŋi "to shave" (-rɔŋ- "do, make, cause," etc.)
Astab: Nub: NOBIIN ségéd "scorpion"   [stem plus NSud *ʈ n. suff.]
Kir-Abb: Nil: ENil: BARI [sɛg-ga "to cut (hair) into strips, clip (cut short)": LOAN from NS language in which *z or *s > /s/]   [it is not clear whether this meaning derives via the Uduk meaning shift or reflects the NSud sense of removal by scraping (e.g., shaving as in Maba reflex)]

Kir-Abb: Nil: ENil: BARI [sɛg-ga "to be aground (of boat)": LOAN]   [semantics: grounded boat has scraped up against shore or stream bottom; separate loan from previous Bari entry because it shows a distinct modification of the original meaning]

Rub: SOO séɠ "to clean"   [PRub *k' > SOO ɠ; semantics: clean by scrubbing]

1240. *zíb OR *síb   "sediment, alluvium"

Koman: UDUK àsíɓ "sand"   [NS *a- n. deriv. pref. plus stem]
Astab: Nub: DONGOLAWI sibɛ "mud, clay"   [stem plus NS *y n. suff.]
Astab: Nub: DONGOLAWI siu, siw "sand, sandbank"
Astab: Nub: NOBIIN síw "sand"
Rub: IK síb (síbo-) "yeast"

1241. *zɔ̂ OR *sɔ̂   "to run away, flee (of many)"

Koman: UDUK sō "to run, flee (pl. subj.)"
KUNAMA so- "to drive to pasture, look after"   [semantics: shift to tr. application]
Maban: MABA -so- "to desert, flee"
Kir-Abb: NYIMANG sɔ "to hide"

Other possible reconstructions: *zɔ̂:, *sɔ̂:, *zɔ̄, *sɔ̄, *zɔ̄:, or *sɔ̄:.

PROTO-NILO-SAHARAN STEM-INITIAL *z or *θ or *s

1242. *a:s OR *a:θ OR *a:z   "thorn"

Maban: MABA ašik "thorn"   [-k is Maba sing. marker]
Kir-Abb: GAAM aase, PL. aasəg "thorn"   [stem plus NS *y n. suff.]
Kir-Abb: Nil: PSNil *ka:t- "thorn"   [NS *kʰ n. pref. plus stem]
Rub: WRub *asat, PL. as "thorn"

PROTO-NILO-SAHARAN STEM-INITIAL *z or *s or *ṣ

1243. *sà:B OR *ṣà:B OR *zà:B   "temporary shelter"   [B = b, p, or ɓ]

KUNAMA sabata "temporary hut for drinking beer"   [stem plus NS *tʰ n. suff.]
SONGAY sàabà "hut of straw"

Other possible reconstructions: *sā:B or *ṣā:B or *zā:B.

PROTO-NILO-SAHARAN STEM-INITIAL *r

1244. *r- (*re, *ra, *ri)   "that one" (dem. pron.)

Koman: Sn Koman *har "he" (KOMO har; KWAMA ar; etc.)   [see root 1588 for structure]
Koman: Komo -ar << 3rd person masc. sing. obj. marker >>
Koman: Komo -er << 3rd person masc. sing. subj. marker >>
CSud: PCS *r- << demonstrative stem >> (*ra "this"; ri "that")
CSud: WCSud: BAKA kɛri "one"   [NS *kʰ n./adj. pref. plus CSud *V-pref. plus stem]
Sah: Tubu: DAZA -re << focative suffix of n. >>
Astab: Taman: TAMA -ir "the" (?)
Astab: PNub *-r << pronomial base of all but 1st person sing. pronoun >> (Hill and River Nubian)
Astab: Nub: DILING oro "there"   [probably *war-, NS *wa dem. (root 1369) plus stem]
Astab: Nub: DILING are, PL. eri "only"   [NS *a- n./adj. deriv. pref. plus stem (regressive V fronting assim. in pl.); -e/-i sing./pl. markers]
Kir-Abb: BERTHA màrɔ́ "they"   [NS pron. root 160 plus stem]
Kir-Abb: Nil: WNil: NAATH ram, ran, PL. rɛm "person"   [stem plus NS *m, *n n. suff.]
Rub: NYANG'I àrɛ́, PL. ɛ̀rɛ́ "that"   [NS *a- n./adj. deriv. pref. plus stem (regressive V fronting assim. in pl.)]

In Eastern Sahelian the commonly attested shape is *re rather than *ra or *ri as in Central Sudanic. Elsewhere the evidence for the vowel component is lacking or uncertain in its implications.

1245. *ràb OR *rà:b   "to sink down, become low"

Koman: UDUK ràbàc' "to trample wet grass, etc., to spoil by trampling"   [stem plus NS *ʈ' iter. intens.]
KUNAMA damada "small, little"   [stem plus NS *d adj. suff.; semantics: "become low" > "become short" > "small"]
Sah: KANURI ràràm "to settle to bottom of liquid" (H)   [partially redup. stem as dur.]
Maban: MABA -ràm- "to pull down, demolish"
Kir-Abb: Nil: WNil: OCOLO [ràb "to collapse" (as football): LOAN from Koman (/b/ for expected *m)]
Kir-Abb: Nil: ENil: BARI ram-bu "to strike down (fruits) with a stick"
Rub: IK ram- "to remove (more than one thing)"   [semantic: Sahelian sense "to pull down" > "pull off, out > remove]
Rub: IK [ràbuɫ- "to crouch, squat": LOAN (expected *ram-), probably from Koman]   [stem plus NS *-uh ven. plus NS *1 iter. > dur.]

Sahelian semantic innovation: shift of verb from intransitive to transitive sense ("to sink down" > "pull or knock down"). The Koman loan in Ocolo shows that the intransitive sense originally inhered in the morphologically unmodified form of the verb in that group of languages also.

1246. *rá:g OR *rá:ŋk   "to spill out, pour down (intr.)"

Koman: UDUK àràkʰ "cloud"   [NS *a- n. deriv. pref. plus stem]
CSud: PCS *ra "to flow"
Kir-Abb: Nil: SNil: Kalenjin *ra:ŋ "to pour"

Other possible reconstructions: *rä:g or *rä:ŋk.

1247. *rá:gʷ   "to burn (intr.)"

Koman: UDUK àràkʰ "grass stubble after fire"   [NS *a- n. deriv. pref. plus stem]
CSud: WCSud: BAKA árá "to burn (intr.)"   [CSud *V- pref. plus stem]
KUNAMA daŋo- "to warm, heat up"
SONGAY déŋgí "embers"   [stem plus NS *k caus. (?) plus NS *-ih
                                                    n. deriv. suff.]

Kir-Abb: Nil: WNil: OCOLO räŋ "to glisten"
Kir-Abb: Nil: WNil: NAATH raŋ "flash of lightning;
   light"
Kir-Abb: Nil: SNil: Kalenjin [*ara:wa "moon":   [see Rub entry for structure]
   LOAN from Rub]
Rub: PRub [*arágwan "moon": LOAN (from   [NS *a- n. deriv. pref. plus stem plus
   Koman?): expected *araŋwan]   NS *n n. suff.]

1248. *rà:k OR *rà:ʃ   "to make, prepare"

CSud: PCS *ra "to prepare, arrange"
KUNAMA -dag- "to make, prepare"
Sah: KANURI ràk "to be able to"

1249. *rà:k OR *rà:kʰ   "to put together"

Koman: UDUK ràkʰ í bwày "to meet and accom-
   pany back" (í "at, in, on, to"; bwày "road, path")
Sah: KANURI ràràk "to pack, tamp down" (H)   [partially redup. stem as iter.]
Maban: MABA -ndrak- "to arrive, join"   [MABA n- caus. plus stem]
Kir-Abb: GAAM räi- "to stick (glue) (tr.)"   [stem plus NS *'y ess.-act.]
Kir-Abb: Nil: WNil: OCOLO räk "to stick in (feather
   in hair, something in thatch)"

1250. *ramp   "joint of leg or arm"

KUNAMA dambeta "forearm"   [stem plus NS *tʰ n. suff.]
Kir-Abb: Nil: WNil: OCOLO räm "thigh, hind leg of
   animal"

1251. *ráp' OR *ráp'   "to strike (person, animal)"

KUNAMA dafo- "to bruise, batter"
Sah: KANURI ráp "to slap with open hand"
Kir-Abb: Daju: LIGURI -ɗab- "to shoot"
Kir-Abb: Nil: SNil: Kalenjin *rapa:c "to hit, box the [stem plus NS *ʈ' iter. intens.]
   ears"
Rub: SOO ráɓ "to hunt"   [semantics: to strike animal with a weap-
                                                     on]

Eastern Sahelian semantic innovation: In the unextended verb attestations in Daju and Rub, a shift
from hitting person (with probably the hand) to striking with a weapon, most probably with an ar-
row, is apparent. The extended verb in Kalenjin maintains the older sense, however.

1252. *rāwp'   "membrane, thin or soft skin"

KUNAMA dofa "pulp"
Sah: KANURI kàrávì "hide of animal (hair still on)"   [NS *kʰ n. pref. plus stem plus NS *'y
                                                         n. deriv. suff.]
SONGAY dòbù "bran"
Kir-Abb: GAAM rəwə "membrane, scum"   [stem plus NS *-Vh n. suff.]
Kir-Abb: Nil: WNil: NAATH rʌprʌp "membrane;   [redup. stem]
   tallow; covering of lung"
Kir-Abb: Nil: ENil: BARI röp "cream; crust"   [BARI ö < *wa or *aw]
Rub: PRub *ruɓ "people" (suppl. pl.) (IK róɓ)   [semantics: "skin" > "body" > "person"]

1253. *ré OR *rē   "to cut in two"

CSud: PCS *re "to pierce, cut into"
Sah: KANURI ré "to divide, split"
Sah: KANURI rétà "half"   [stem plus NS *ʈʰ n. suff.]
Kir-Abb: proto-Daju *ɗet-/*det- "to split"   [stem plus NS *tʰ cont.]

The meaning "to cut in two," implied in the Kanuri nominal, is specified in the semantic recon-
struction of this root because one of the two early Nilo-Saharan roots for "two" (1287) is a trans-
parent noun or adjective derivative of this root.

1254. *réɗ   "to fasten, make fast"

Koman: UDUK réɗ "to weave bamboo, to fence; to
   tie slip knot on baby sling"
CSud: MM: LUGBARA ríɾi "thoroughly (by twin-
   ing a thing around repeatedly with rope); inextrica-   [PCS *re redup. to form modifier]
   bly"
Kir-Abb: PNil [*ʀɛːd "to fasten tightly" (WNil:
   OCOLO ret "to tie a knot, tangle"; PSNil *ʀɛːt
   "schwer fassen"): LOAN (expected *red OR *rid),
   probably from Koman]
Kir-Abb: Nil: ENil: TESO -rɪdakɪn "to grip, fasten,   [stem plus ENil benef.]
   squeeze"
Rub: IK reɗ- "to squeeze"; reɗet- "to tighten"   [2nd entry: stem plus NS *tʰ cont.; ex-
                                                         pected high tone, however?]

1255. *rēɖ   "to be stiff, hard"

Koman: UDUK rèɗéɗ "stiff from walking"   [stem plus NS *ɭ n./adj. suff.]
CSud: PCS *re "stout, strong"
Kir-Abb: Nil: WNil: OCOLO riʈ "to be hard, tough"
   (as meat)

1256. *rè:k OR *rè:ʃ   "to lift"

CSud: PCS *ri "to lift, pick up"
Sah: KANURI ràk "to load"
SONGAY dèèjì "to hang up, suspend"
Astab: Nub: DONGOLAWI ɛjɛkkɛ "to ascend, go   [stem plus NS *-i itive]
   up, come up"   [stem plus NS *kʰ intr. plus NS *'y
Kir-Abb: proto-Daju *ɗeg- "to load"   ess.-act.]
Kir-Abb: Nil: PNil *re:k OR *re:g "to pick up, lift   [expected *ɗag- ?]
   off" (ENil: BARI reg-ga "to grasp"; SNil: Kalenjin
   *re:k "to undress")

1257. rém p   "to hit, collide with"

Koman: UDUK rém k'úpʰ "to ram head" (k'úpʰ "head")

Koman: UDUK rèmès "to spear fish"   [stem plus NS *θ intens.; semantic influence from Nilotic reflex?]

SONGAY démbé "to box, slug"

Kir-Abb: Nil: PENil *-rém "to spear"

1258. *rémpʰ   "to become thin"

Koman: UDUK répʰárèpʰ "thin (of person)"   [adj. by redup. stem]

CSud: PCS *rɛ "thin"

KUNAMA danfi- "to decrease"

Kir-Abb: Nil: PWNil [*rɛp "thin" (NAATH rɛprɛp, OCOLO rɛp): LOAN (expected *rep OR *rip), probably from Koman]

1259. *rép   "to stop (intr.)"

CSud: PCS *re "to stop, stay, sit; to set"

KUNAMA -dab- "to settle (at, in), settle (down)"

SONGAY débèy "agricultural village, encampment"   [stem plus NS *y n. suff.]

Astab: NARA deb "to lie down"   [this form shows semantic outcome that would be expected of Nara reflex of root 1267]

Astab: Nub: DONGOLAWI ɛbir "to stop (tr.)"   [stem plus Nubian *r caus.]

Kir-Abb: Nil: ENil: TESO -rebokin "to hinder, prevent"   [stem plus ENil benef.; possible loan < Rub?]

Rub: IK réb- "to refuse, hold back"

A possible counter-indicator of Songay's membership, along with Nubian and Nilotic, in a Sahelian grouping is provided by Kunama's and Songay's shared semantic innovation, the meaning "to settle, form a settlement." On the other hand, the semantic influence of the resemblant Kunama reflex of root 1267 may be responsible for an independent parallel shift here.

1260. *répʰ / *rípʰ   "to join, connect (tr.)"/"to tie together"

Koman: UDUK rípʰ "tightly (tied)"

Koman: UDUK rèpʰén "to lock horns, not fit in space allowed"   [stem plus NS *n dur.]

Sah: KANURI róp "to reach, go as far as, join (as when meeting)"

Kir-Abb: GAAM rɛwn- "to meet"   [stem plus NS *n dur.]

Kir-Abb: Nil: PWNil *rɛp "to join together" (OCOLO rɛp; NAATH rɛp "to add to")

Kir-Abb: Nil: ENil: PENil *-rípʰ "to sew, mend"

For other examples of this stem-vowel alternation and its semantic effect, see note to root 126.

1261. *rékʰ / *rikʰ   "to match, fit"/"to arrange to fit"

CSud: PCS *orɛ "to line up, put in a row"

KUNAMA díki- "to straighten"

Sah: KANURI rák "to be equal to"

Kir-Abb: GAAM ráá- "to agree"

Kir-Abb: GAAM rɔgdɔg "agreement"   [stem plus NSud *ṯ n. suff. plus NS *kʰ pl.]

Kir-Abb: Nil: WNil: OCOLO rɪk "row"

Kir-Abb: Nil: ENil: MAASAI -iririki "to do something accurately, to fit"   [*i- v. class pref. plus partially redup. stem plus *-i itive]

For other examples of this stem-vowel alternation and its semantic effect, see note to root 126.

1262. *ré:y   "to seep, discharge fluid; to bleed"

CSud: PCS *re "to drip"

CSud: MM *(k)àré "blood"   [(NS *kʰ n. pref. plus) CSud *V- pref. (NS *a- n. deriv. pref.) plus stem]

Maban *ari "blood" (MABA ari "blood; sap"; MIMI eri)   [NS *a- n. deriv. pref. plus stem; fronting assim. in Mimi: *a > e /_Ci]

Astab: Taman: TAMA riyaɲni "cold"   [stem plus NS *ɲ n./adj. suff. plus *n suff. (sing. marker?)]

Astab: Nub: NOBIIN àrrée "cataract"   [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Surmic: DM *rɛco' "tear"   [*rɛyo', stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: PWNil *ryɛm "blood" (OCOLO rɛmo, NAATH riɛm, proto-Burun *yɛmk-)   [stem plus NS *m n. suff.; Burun: plus also *kʰ pl. as mass pl.]

Kir-Abb: Nil: ENil: MAASAI e-reyíét "river"   [stem plus ENil *-et deverb.]

Kir-Abb: Nil: SNil: PAKOT reyín "dew"   [stem plus NS *n n. suff.]

Despite the parallel derivational morphology of the Moru-Madi (East Central Sudanic) and Maban nouns for "blood," separate innovations probably have to be postulated for the two groups because a distinct root for the meaning "blood" (see root 338) is found widely in the other branches of Central Sudanic and can be reconstructed back to proto-East-Central-Sudanic. Because of these two noun derivations, and the separately derived Western Nilotic noun, this verb is best reconstructed as having had the more specialized meaning "to bleed," along with its more general sense of seeping out.

1263. *rí OR *ríh   "to fear"

CSud: PCS *ri "to fear" (MM *ori/*uri)

Sah: KANURI rí "to fear"

Kir-Abb: Nil: ENil: MAASAI [-uré "to fear": LOAN from MM (CSud)]

Rub: SOO rit- "to surprise"   [stem plus NS *ṯ caus. (PRub *-t-)]

Rub: IK rim- "to hide out of fear"   [stem plus NS *m iter. conc.]

1264. *rík   "to tie up"

Koman: UDUK àrìhàny "thatch; grass used for thatching"   [NS *a- n. deriv. pref. plus stem, plus NS *ɲ n. suff., added since NS *k > UDUK kʰ /V_# (hence allowing further shift of /kʰ/ to [h] /V_V); semantics: "tie" > "shut" > "cover, roof," or because thatch is tied down to the roof]

CSud: PCS *ri "to tie"

Sah: KANURI rɔk "to tie up two-sided load"

FOR rig- "to tie"

SONGAY dídígí "to roll up, wind up (in), bandage wound"   [partially redup. stem as iter.]

Kir-Abb: Daju: SHATT rik- "to shut"   [possible loan: elsewhere in Daju languages usually d/d < verb-initial NS *r]

Kir-Abb: Nil: WNil: OCOLO rik "to close up, cover up"

Kir-Abb: Nil: ENil: TESO -rikɔkɪn "to link" (chain)   [stem plus ENil benef.]

Kir-Abb: Nil: ENil: BARI rɛg-ga "to tie together"

[probable low-front-V variant of ENil *rɪg-: see discussion of this phenomenon in root 126 and Chap. 5]

Kir-Abb: Nil: ENil: BARI rigilet "latch"

[stem plus NS *1 iter. plus ENil *-et deverb.]

Kir-Abb: Nil: SNil: NANDI ric "to plug up hole"

[regular NS *K > Kalenjin *c, verb-stem-final; semantics: shut > plug]

Kir-Abb: Nil: SNil: NANDI rike "thong"
Rub: IK ɪrɪk- "to hunt, round up"

[stem plus NS *-eh n. deriv. suff.]

[*i- v. class pref. plus stem; semantics: enclose > round up (animals)]

Eastern Sahelian semantic innovation: A shift from "tie up" > "encircle, enclose" (> Kir "close up, shut") appears in the simple, underived verb forms in Ik, Shatt, and Nilotic. Only the extended Teso reflex, the derived noun in Nandi, and the vowel-variant form in Bari retain the sense of tying.

1265. *ríŋ OR *ríg "to injure"

Sah: KANURI rə̀nd "to hurt, ache"

[stem plus NS *tʰ cont., with intr. effect]

Maban: MABA -riŋ- "to injure, wrong"
Kir-Abb: Nil: ENil: MAASAI e-riŋit "wrongdoing, sin"

[stem plus ENil *-et (*-it allomorph) deverb.]

Sahelian semantic innovation: addition of figurative sense, "to wrong, do injury by wronging someone."

1266. *rìŋ OR *rìg "body (of animal)"

CSud: MANGBETU né-ri "animal"
KUNAMA diŋa "muscle, tendon, nerve, vein"

[semantics: "body" > "body part" > "muscle"]

[NS *a- n. deriv. pref. plus stem]

Astab: Nub: NOBIIN áríj "meat"
Kir-Abb: TEMEIN ɲiŋan "meat"

[stem plus NS *n n. suff., with regressive nasal assim. (*riŋan > *niŋan) and subsequent palatalization (*n > ɲ /#_i]

Kir-Abb: Surmic: S.Surmic *eriŋ "meat" (KWEGU ɛːruŋ; SW Surmic *idiŋ)

[regressive V assim: *ariŋ > *eriŋ, with subsequent *i > u /_ŋ in Kwegu and *e > *i and as yet unexplained *r > *d /#_CiC in SW Surmic]

Kir-Abb: PNil *kiriŋ "meat" (PWNil *riŋ; PENil *-kiriŋ-

[regular sound shift: *C₁V > PWNil Ø /#_C₂VC#, where C₁ = velar (e.g., roots 762 and 1000) makes it probable that PNil had *kiriŋ, NS *kʰ n. pref. plus stem]

Other possible reconstructions: *rīŋ or *rīg. The parallel morphology of the Nobiin and Surmic forms suggests that they attest an Eastern Sudanic innovation. The presence of different affixation on the Nyimang and Nilotic reflexes indicates that they, however, may be distinct innovations, although semantically parallel in result.

1267. *ríp OR *ríɓ "to go down, descend"

CSud: PCS *ri "to go down"
KUNAMA -dib- "to settle"

[semantic influence of the resemblant Kunama reflex of root 1259 is probably present here]

KUNAMA diba "village; assembly area of village"
Sah: KANURI rə́b "ideophone of lying flat on the ground"

[semantics: v. "to settle" > "settlement"]

SONGAY díbí "to lean on hands, to lean on something for walking because one limps slightly"
Kir-Abb: Nil: WNil: OCOLO ryɛp "to lie on stomach"

Saharo-Sahelian semantic innovation: narrowing of application of the root to a particular kind of going down, reclining against something. If this root reconstructs as *rip, it may be a high-vowel alternate of root 1259; see note to root 126 for a list of the root alternancess of this type found in this dictionary.

1268. *rô: OR *rô: "to become wet"

Koman: GULE rus "wet; rain"
CSud: ECS *ru "to be moist"
KUNAMA du- "to ford"
FOR rôò, PL. rooŋa/roota "river"

[stem plus NS *s n./adj. suff.]

[stem plus NS *-Vh or else *w n. deriv. suff. (as in Gaam and Rub entries)]

Kir-Abb: Jebel *aro "rain" (BERTHA rrɔ; AKA, MOLO aro)

[NS *a- n. deriv. pref. plus stem]

Kir-Abb: GAAM ruud, PL. ruułg "valley"

[stem plus NS *w (to account for shift *o > u) and *l or *t n. suff.; semantics: "river" > "valley" (place where stream flows)]

Kir-Abb: Surmic: S.Surmic KWEGU rrɔkú "to swim"

[stem plus NS *kʰ iter. (plus NS *-uh ven.?); semantics: "get wet repeatedly or continually" > "swim"]

Kir-Abb: Nil: ENil: MAASAI -rot "to have diarrhea"

[stem plus NS *tʰ cont.]

Kir-Abb: Nil: ENil: BARI ro-ju "to refresh (with water)"
Kir-Abb: Nil: ENil: BARI [ru-ja "to moisten, sprinkle, wet by soaking": LOAN from CSud (expected *ro)]
Kir-Abb: Nil: SNil: NANDI rot "to flow (of water)"

[stem plus NS *tʰ cont.]

Rub: IK rɔw, PL. roíkw "plain" (rɔwá-)

[semantics: "river" > "valley" > "plain"]

Sahelian semantic innovation: A shift of meaning from getting wet to the moving of water (i.e., "to flow") is implied in the For and all the simple, non-borrowed Kir-Abbaian and Rub citations. An additional Sahelian innovation seems probable, namely, the derivation of a noun for "river" from the verb in the meaning to "flow." Its probable shape was *ro:w, stem plus Nilo-Saharan noun formative in *w. The Ik singular gives overt indication of such a structure, and Gaam shows an internal indication of the *w suffixation in its otherwise unexpected lengthening and raising of the stem vowel (ruuł < *ro: + w + ł). Eastern Sahelian semantic innovation: shift of this noun from denoting "river" to denoting the feature of geography containing a stream, "valley" (with a further shift from "valley" to "plain" in Ik). Jebel innovation: derivation of a noun for "rain" from the verb. An alternative attribution of the Aka and Molo reflexes would be to the root 1559, but the final vowel /o/ makes the link to the Bertha reflex and to the root posited here a much better fit.

1269. *rô: OR *rô:h "to look at"

Sah: KANURI rú "to see"
Kir-Abb: BERTHA rú- "to see"
Kri-Abb: Nil: ENil: TESO -ro "to examine"
Kri-Abb: Nil: ENil: TESO -rot "to spy"

[stem plus NS *tʰ cont.]

Kir-Abb: Nil: SNil: Kalenjin *ro: "to see"
Rub: IK [rɔt "to spy": LOAN from Ateker]

[stem plus NS *tʰ cont.]

Despite the recurrent outcome "to see," the meaning "to look at" was chosen here because it allows the derivation by single meaning shifts of both the sense "to examine" in Teso and the meanings "to see" in the Kanuri, Bertha, and Kalenjin reflexes.

1270. *rók^h   **"to put together, join (two things)"**

Koman: UDUK àrōk^h "basket fish trap"

[NS *a- n. deriv. pref. plus stem; semantics: "put two together" > "put one thing in another," hence application to catching fish in a basket]

GSud: PCS *ro "two"

CSud: ECS *ro "with"

Sah: KANURI rókkó "together (with)"   [stem plus NS *k modifier deriv. suff.]

Maban: MABA dokunok, PL. dokunsi "bonds, rope"   [stem plus NS *n n. suff.]

Astab: Nub: DONGOLAWI agau- "to make rope by twisting"   [stem plus NS *w punc.]

Kir-Abb: GAAM róó- "to sew; to be tangled" (*róg-)

Kir-Abb: Nil: WNil: JYANG [ruk "to join, connect"): LOAN (expected *rok)]

Kir-Abb: Nil: SNil: Kalenjin *roko- "rope"   [stem plus NS *-Vh n. deriv. suff.]

Sahelian semantic innovation: application of verb specifically to joining together by binding, especially using a rope.

1271. *rój   **"to become weak"**

CSud: PCS *ro "to hurt (intr.)"

KUNAMA dalau- "to slacken, soften, shrink, weaken"   [stem plus NS *w punc.]

Kir-Abb: GAAM rəłen "helpless"   [stem plus NS *n modif. suff.]

Kir-Abb: GAAM rɔ́ín- "to wither"   [stem plus NS *n dur., with common Gaam shift *ł > Ø /V_i]

Kir-Abb: GAAM ərd, PL. ərłəg "orphan"   [NS *o- n. deriv. pref. plus stem; semantics: socially weak; this is a common African derivation of words for "orphan" and for "widow"]

1272. *rómb   **"to pay back, recompense"**

KUNAMA dabi- "to pay debts"

Sah: KANURI rə̀mb- "to reimburse, pay back"

Kir-Abb: Nil: ENil: PENil [*-rɔp "to reward, pay" (MAASAI -róp "to bribe"): LOAN (expected *ròm), probably from unattested Koman]

1273. *róp OR *rōp   **"to grow large"**

CSud: PCS *ru "to grow, swell up"

KUNAMA dabota "heavy"   [stem plus NS *t^h n./adj. suff.]

Astab: NARA dub "abundance, bigness"

Astab: NARA dub-ko "big"   [stem plus NS *k adj. suff.]

Kir-Abb: DINIK dúbɔ̀ "big"   [apparent distinct derivation of adj. from that seen in Nara "big"]

Rub: Ik rúb-ɛt- "to sprout"   [stem plus Ik ven.]

1274. *rɔ́:h OR *rɔ̄:h   **"to take hold of"**

CSud: MM: LUGBARA aro "to lift something (heavy) with laborious care" (CSud *rɔ)   [CSud *V- pref. plus stem]

Sah: KANURI ró "to take hold of"

Kir-Abb: BERTHA ró:θ- "to squeeze, twist"   [stem plus NS *θ intens.]

Kir-Abb: Nil: ENil: PENil *-rut- "to uproot, take away" (BARI rʊd-dʊ "to carry away, off")   [stem plus NS *t^h cont.]

Rub: SOO róʊ "to touch"   [stem plus NS *w punc.]

Rub: IK irot- "to take from one place to another"   [*i- v. class pref. plus stem plus NS *t^h cont.]

1275. *rɔ́p OR *rɔ́ɓ   **"to join, connect up (tr.)"**

CSud: PCS *rɔ "to wrap up"

SONGAY dóbú "to solder, join, connect, make a graft"   [stem plus NS *-uh ven.]

Astab: Nub: DONGOLAWI abd- "to meet"   [stem plus NS *t^h cont.]

Kir-Abb: GAAM ráwg "fence"   [stem plus NS *w n. suff. plus NS *k singul. or *k^h pl. marker]

Kir-Abb: PNil *rob "to join (tr.)" (OCOLO rop "to string beads"; MAASAI -rʊb "to join end to end"; SNil: NANDI rop "to join (tr.)"

Rub: IK roɓ, PL. roɓitin "leather used for cow belts"   [n. < v. by tone switch; "join" > n. "belt" > "leather used for belt"; possibly influenced by original meaning of root 1252]

1276. *ru OR *ruh   **"self/body"**   [derivative of dem. root (1244) *r- ?]

CSud: PCS *ro "self"   [probable *ruo, stem plus CSud *-V n. suff. (*-o < NS *-aw n./adj. suff.?)]

CSud: ECS *ru "body"

Sah: KANURI rú- "alone, by oneself" (prefixed to poss. pron.)

Maban: MABA -r << reflexive/passive marker >>

Kir-Abb: Surmic: S.Surmic *ru- "skin" (KWEGU ruːaː, MURLE ruceen)   [Murle *ruyeen, stem plus NS *'y and *n n. suff.]

Kir-Abb: Nil: ENil: Ateker [*ruyaan "same" : LOAN from Rub]   [see Rub entry followiing]

Rub: PRub [*ruyaan "same": LOAN (expected *ru'jaan), possibly from Surmic (cf. Murle "skin")]   [stem plus NS *'y and *n n./adj. suff.; semantics: "self" > "same"]

1277. *rùː OR *rùːh   **"to have an aversion to"**

CSud: ECS *ru "to fear"

Sah: KANURI rù "to despise"

Kir-Abb: Nil: ENil: MAASAI -irut "to be afraid"   [*i n. class pref. plus stem plus NS *t^h cont. (as intr.?)]

Kir-Abb: Nil: SNil: Kalenjin *ʀu(ː) "to fear"   [*r < ʀ: *i- v. class pref. preceding the stem created the postvocalic environment for this shift]

1278. *rūk   **"to watch, look after"**

CSud: PCS *ru "to watch, look after"

KUNAMA digo- "to explore, watch attentively"

FOR rugul- "to search for"   [stem plus NS *l iter.]

Astab: Taman: TAMA -rukun- "to wait"   [stem plus NS *n dur.]

Kir-Abb: Nil: WNil: OCOLO ruk "to look after, care for well"

Kir-Abb: Nil: ENil: TESO -rʊkʊm "to brood (of hens)"   [stem plus NS *m iter. concis.]

Kir-Abb: Nil: ENil: BARI rʊrʊg-ga "to educate, bring up"

Rub: IK irúk- . . . -uk'ot- "to chase after"

[stem partially redup. as extend.]

[*i- v. class prefix plus stem plus Ik v. ext.; semantics: look after (animals) > drive (animals, as to pasture) > chase after]

1279. *rùkʰ OR *rū̃kʰ "to strike"

Koman: UDUK rùkʰ "to kick, strike"

KUNAMA diki- "to pound" (e.g., skin to tan it)

KUNAMA duka- "to knock against, beat"

KUNAMA dukku- "to beat, hit"

Maban: MABA [erik "mortar": LOAN from Tama]

[stem plus NS *-a dispunc.]

[gemin. as iter.]

[-k is Maba reinterpretation of stem-final *k as Maba n. sing. marker; /i/ probably arose as epenthetic insertion to break up CC sequence; see Tama entry for structure]

Astab: Taman: TAMA ɛrkí, PL. ɛrkú "mortar"

[NS *a- n. deriv. pref. (with V height assim., *a > *ɛ /#_CuC) plus stem]

Astab: Nub: DILING [dug "to beat, thresh": LOAN from language in which NS *r /#_ was preserved or > *d]

Kir-Abb: Nil: ENil: TESO -ruk "to pound in mortar"

Eastern Sahelian semantic innovation: narrowing of the application of the verb to the pounding of grain.

1280. *rúm "to attack and seize"

Koman: UDUK rúm "to make angry and charge, as lion"

CSud: MM *ru "to seize, catch"

Kir-Abb: Nil: ENil: TESO -rum "to seize"

Kir-Abb: Nil: SNil: Kalenjin *rum "to murder"

1281. *rúm OR *rúb "to collapse"

Sah: KANURI rəmək "to feign sleep"

Kir-Abb: Nil: WNil: OCOLO rum "to finish (intr.)"

Rub: IK rúmán- "to fall"

[stem plus NS *kʰ iter. > dur.]

[stem plus NS *n dur.]

Other possible reconstructions: *rūm OR *rūb.

1282. *rúp "thin stem"

Koman: UDUK àrùrùpʰ "dance flute"

[NS *a- n. deriv. pref. plus partially redup. stem]

CSud: PCS *ru "stem, strand, fiber"

SONGAY dúbí "souche, tronc d'arbre"

Kir-Abb: Nil: WNil: NAATH rup, rwop "forest"

Apparent Sahelian semantic innovation: shift in application of this noun from thin stems to tree trunks and hence in Naath to "forest."

1283. *rùr "to rumble"

KUNAMA duddu- "to rumble (of fire)"

SONGAY dùrèy "to groan, moan"

Maban: MABA durdak "thunder"

[*durtu-, stem plus NS *tʰ cont.]

[stem plus NS *'y ess.-act.]

[stem plus NSud *ʈ n. suff. plus MABA -k n. sing. marker]

Kir-Abb: Nil: WNil: OCOLO rur "to hum, roar, rumble, mumble"

Kir-Abb: Nil: ENil: MAASAI [ɪ-rura "to sleep": LOAN < SNil (expected *rurr-)]

Kir-Abb: Nil: SNil: Kalenjin *rur "to sleep"

[*i- v. class pref. plus stem plus Maa *-a neuter ext.; semantics: seen Kalenjin entry]

[semantics: via proposed earlier sense "to snore"; Rottland 1982 gives *ru]

1284. *rwíkʰ "to speak, especially forcefully; to pester, bother verbally"

Koman: UDUK rùkʰ "to abuse with words"

Koman: UDUK rùhùny "to try to persuade someone who doesn't want to be persuaded; to continue to ask when refused"

CSud: PCS *ru to speak"

CSud: PCS *ru, *ri "name"

[expected high tone?]

[stem plus NS *ɲ extend.]

CSud: PCS *kɔru "speech, talk, language"

KUNAMA duka- "to bother, importune"

SONGAY dúkà "to reproach"

SONGAY dúkèy "sound of speech"

SONGAY dúkkùrù "to feel rancor, be angry"

Astab: Nub: DONGOLAWI u:kk- "to bark, bawl"

Kir-Abb: Nil: ENil: TESO [-ru "to crow, sing (of birds)": LOAN from CSud (C# > Ø)]

Rub: IK irúk- "to sing"

[probable underlying shape *rui, stem plus NS *'y or *-ih n. deriv. suff.; semantics: this derivation attests to a pre-PCS meaning "to call" for the v. root]

[NS *kʰ n. pref. plus CSud *V- pref. plus stem]

[stem plus NS *-a dispunc.?]

[stem plus NS *-a dispunc.]

[stem plus NS *y n. suff.]

[stem plus NS plus NS *k intens. plus *r n. suff., with v. < earlier n.]

[gemin. as intens.]

[*i- v. class pref. plus stem]

1285. *rwís "to be fat"

Koman: UDUK rúsárùs "fat"

CSud: PCS *ri "thick, dense"

KUNAMA durusa "strong" (durusi- "to be strong")

Sah: KANURI rús "ideophone of round objects lying around"

Kir-Abb: Nil: WNil: NAATH rwɪt "to be pregnant"

[adj. by redup. stem]

[< *rurus-, partially redup. stem]

[semantics: "fat object" > "round object"]

1286. *à:r "intestines"

KUNAMA arda, adda "intestines"

Astab: Nub: DONGOLAWI a:rɛ "interior, inner part, inside"

Kir-Abb: DINIK arək "stomach"

Kir-Abb: DINIK kárnḍà "belly"

Rub: PRub *arí "intestines"

[stem plus NSud *ʈ n. suff.]

[stem plus NS *y n./adj. suff.]

[stem plus NS *kʰ pl. (mass pl.)]

[NS *kʰ n. pref. plus stem plus NS *n or *ŋ n. suff. plus NSud *ʈ n. suff.]

1287. *àré "two" [NS *a- n./adj. deriv. pref. plus root 1253]

CSud: MM *are "two"

Sah: KANURI àràskə̀ "six"

[for a clearly PCS root for "two," see root 1270]

[< *àr-yàskə̀, literally "two-three" (KANURI yàskə "three")]

Astab: NARA are(ga) "two"

Astab: Nub: DONGOLAWI ari "twenty"　　　　[stem plus NS *-ih pl.?]

Astab: Nub: NOBIIN áróo "two"　　　　[stem plus probably *w n/adj. suff. (*araw)]

Kir-Abb: Nyimang *arma "two" (NYIMANG ár(m)bà, DINIK ármàk)　　　　[stem plus NS *m adj. affix (plus NS *k adj. suff. in Dinik reflex)]

Kir-Abb: Surmic: S.Surmic *rama "two"　　　　[stem plus NS *m adj. affix (*rama < earlier *arama)]

Kir-Abb: PNil *aʀe "two" (WNil: proto-Luo *ariyo, BURUN are, etc.; PENil *are; PSNil *aʀeːɲ)　　　　[SNil: stem plus NS *ɲ n./adj. suff.; Lotuko-Maa apparent regular *ʀ > *r /a_e#; see root 1558 for same result]

This item is one of two old Nilo-Saharan roots for "two," the other being *mbar (root 78). If the subclassification of the family followed here is correct, then *are cannot be traced back quite as far in the family's history as *mbar. It may have arisen at first as a secondary word for indicating duality, perhaps meaning "pair," or used in adjectival senses of "two" while *mbar was used in counting (or vice versa). Only in the Eastern Sahelian branch does *are seem to have become the general term for the meaning. Innovation of uncertain placement in the evolution of the Kir subgroup: addition of the *m adjective suffix to the root in the Nyimang and Surmic languages.

1288.　*āró OR *àró　"white"

KUNAMA ara "white" (ILIT allo)

SONGAY kàaró "white"　　　　[NS *kʰ n./adj. pref. plus stem]

SONGAY kàaréỳ "to be white"　　　　[Songay adj. plus NS *'y ess.-act. as deadj.]

Astab: NARA eren- "white"　　　　[stem plus NS *n modif. suff.; with regressive V assim. (*a > e /#_Ce]

Astab: Taman: TAMA ará: "yellow"　　　　[stem plus NS *-Vh n./adj. deriv. suff.]

Astab: Nub: DONGOLAWI aro "white"

1289.　*or / *er　"to go/come"

CSud: PCS *rɔ "to go"

CSud: ECS *rɛ "to come"

KUNAMA arad- "to dislodge, move (tr.)"　　　　[stem plus NS *ṭ caus.]

Sah: KANURI àré "come!"

Sah: Tubu *-r- "to come"

Sah: ZAGHAWA r- "to come"

FOR ere "from the direction of"

Astab: Taman: MERARIT -or- "to come"

Kir-Abb: NYIMANG ṭ-ɔr "to come (def.)"　　　　[Nyimang def. pref. plus stem]

For other examples of verbs of movement of CV (or VC) shape in which the consonant is held constant but alternative vowels can be reconstructed, see roots 708, 1029, 1303, 1372, and 1472.

1290.　*ùr OR *ūr　"raised surface, raised part of something"

Koman: UDUK ūrē' "lump (swelling on body)"　　　　[stem plus NS *-eh n. deriv. suff.]

CSud: ECS *ru "up

Astab: Taman: MERARIT ure: "head"　　　　[stem plus NS *-eh or *y n. suff.]

Astab: PNub *ur "head" (NOBIIN ùr)

Western Astaboran semantic innovation: specification of the meaning "head" for this root. Nyimang *wor "head" does not show regular correspondence in its vowel or its first consonant and so apparently derives from a distinct root (Nyimang *wo is normally from earlier *we).

1291.　*kʰúr　"hill"　[NS *kʰ n. pref. plus root 1290]

CSud: WCSud *ku "hill"

Sah: KANURI kə̀rî "hill"

Astab: Taman: TAMA kura, PL. kuruŋ "stone, hill"　　　　[stem plus NS *-ih n. deriv. pref.]

Astab: Nub: DONGOLAWI kutt- "mound"

Astab: Nub: DONGOLAWI, NOBIIN kùrùɲ "hump"　　　　[*kurt-, stem plus NS *tʰ n. suff.]

Astab: Nub: BIRKID kur "stone"　　　　[stem plus NS *ɲ n. suff.]

Kir-Abb: TEMEIN kurɛṭ "stone"

Kir-Abb: Nil: WNil: JYANG kur "stone"　　　　[stem plus *ṭ sing. marker]

Possible Eastern Sahelian semantic innovation: additional meaning "stone" for the simple noun root. Alternatively, this shift may have taken place separately more than once, in view of the recurrent semantic linking of "stone" and "mountain, hill" in the Nilo-Saharan languages.

PROTO-NILO-SAHARAN STEM-INITIAL *l

1292.　*l-　<< demonstrative pronoun >>　(*ili "that one (?)"; *ɛlɛ "this one (?)"; *àlá "the one referred to (?)")

Koman: Gumuz *la, ala "this"

CSud: PCS *alo "one"

CSud: ECS *lɛ << 3rd person marker >>　　　　[3rd stem plus NS *w n./adj. suff. (*alaw)]

CSud: BALEDHA eli "one"　　　　[stem with NS *ɛ 3rd person sing. pron. substituted for stem V]

CSud: WCS: BELI lɛ "this"　　　　[CSud *V- pref. plus 1st stem]

KUNAMA ella "one"　　　　[2nd stem]

KUNAMA alle "here"; olle "there"　　　　[2nd stem plus KUNAMA -a word final of all n./adj.]

　　　　["here": NS *a- n./adj. deriv. pref. plus 2nd stem; "there": proposed *walle, *wa dem. root (1369) plus stem of "here"]

Sah: ZAGHAWA la "you (sing.)"　　　　[3rd stem]

Sah: ZAGHAWA l << 2nd person sing. marker >>　　　　[reduction of Zaghawa indep. pron.]

Sah: ZAGHAWA lai "who?"　　　　[3rd stem plus NS *y- interrog. stem (root 1467]

Sah: ZAGHAWA le "what?"　　　　[2nd stem plus NS *y- interrog. stem (root 1467)]

FOR ăl "who, which" (rel. pron.)　　　　[*àlá, 3rd stem]

FOR íllà, PL. kìllà "that"　　　　[1st stem plus NS *-ah n./adj. suff.]

Maban: MABA illek, PL. illi "that one"　　　　[1st stem; -k is MABA n./adj. sing. marker]

Astab: Nub: DILING el "now"

Kir-Abb: BERTHA (M) ale "this"　　　　[NS *a- n./adj. deriv. pref. plus 2nd stem]

Kir-Abb: BERTHA àlí "I"　　　　[NS *ah 1st person root substituted for 1st V of 1st stem (*ah + *ili > *ali)]

Kir-Abb: Nil: PWNil *kɛl "one"　　　　[NS *kʰ n. pref. plus 2nd stem]

Kir-Abb: Nil: PENil *elo- << masc. demonstrative stem >> (PENil *lo- masc. attrib. marker; Maa *el- masc. dem. stem; Maa *l- masc. article)　　　　[this root can be argued to have become the masc. marker by default with the ENil development of *ɛna- fem., for which see root 262; Maa reduced form as masc. article]

Kir-Abb: Nil: ENil: BARI lele' "any certain, other" [2nd stem redup.]
 (indef. pron.)

Kir-Abb: Nil: SNil: Kalenjin *alak "other (pl.)" [3rd stem plus NS *kʰ pl. marker]

1293. *láb OR *láɓ OR *láp "to talk rapidly"

KUNAMA labo-, labe- "to mumble"

Sah: KANURI làblàwá "to persuade with sweet [redup. stem as iter. plus NS *-a dis-
 words" (H) punc.]

Kir-Abb: Nil: ENil: TESO -labilab "to chatter" [redup. stem as iter.]

If the proto-Sudanic or proto-North Sudanic sonorant assimilation shift seen in roots 1245-1247 can be shown to be a case of a more general rule, [-contin/-glottal/+voice] > *N /#LV_# (L = liquid)), then the reconstruction of PNS *b could be ruled out for this root and for roots 1312, 1316, 1317, and 1330. Similarly, the possibility of reconstructing PNS *g could be disregarded for root 1318 and 1327. The existence of a such a general sound shift remains to be established, however.

1294. *lák OR *lá:k "to separate (tr.)"

Koman: UDUK lákʰ . . . ɾs "to separate one from
 the other; to divide as sheep from goats" (ɩs
 REFL.)

KUNAMA lagga- "to break, pull to pieces" [gemin. as iter.]

Kir-Abb: Nil: PENil *-lak- "to take loose" (MAASAI
 -lák "to loosen, untie")

Kir-Abb: Nil: ENil: MAASAI lakwá "far" [stem plus NS *w n./adj. suff., i.e.,
 separated, apart > far]

Rub: SOO lakac "to choose" [stem plus Soo ven.; PRub *ɬ > SOO /l/]

Rub: IK [lakám- "to (go and) disappear": LOAN [stem plus NS *m iter. conc. as intr.;
 from language in which NS *ɬ > *l] semantics: to separate oneself and so
 disappear from view]

1295. *lákʰ OR *lá:kʰ "to eat soft food"

Koman: UDUK lákʰ "to eat sauce, mushrooms, food
 with water"

CSud: ECS *kala "gullet" [NS *kʰ n. pref. plus stem]

KUNAMA lako- "to chew"

Kir-Abb: proto-Daju *lax(t)- "to lick" [stem (plus NS *tʰ cont.)]

Kir-Abb: Nil: WNil: NAATH lak "to graze"

1296. *lal OR *la:l "to drench, wet thoroughly"

CSud: PCS *la "to rinse"

KUNAMA -lal- "to rinse"

Kir-Abb: TEMEIN alala "fish" [NS *a- n. deriv. pref. plus stem]

Kir-Abb: West Daju *alal- "river" [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Surmic: S.Surmic *lal- "cold"

Kir-Abb: Nil: ENil: BARI [lala-ju "to wash": LOAN [redup. stem as iter.]
 from CSud (C# > Ø)]

Rub: IK [ɩlálát- "to make wet": LOAN (expected [*i- v. class pref. plus stem plus NS *tʰ
 *ɬaɬ-)] cont.]

1297. *là:l "to call out to (someone)"

Koman: UDUK làl gwò šók' "to persuade, incite to
 do something" (gwò "word"; šók' "repeatedly")

CSud: PCS *la "to call out"

KUNAMA lal- "to denigrate"

Sah: KANURI làn "to abuse, curse"

SONGAY láalí "to curse" [liquid dissim.: *l > *n /#lV-#]
 [stem plus NS *-i itive]

Northern Sudanic semantic innovation: narrowing of the meaning of the verb to abusive calling out. Saharo-Sahelian semantic innovation: further specialization of the verb to cursing.

1298. *lám "to wash (other than hands)"

Koman: UDUK lám "to wash (things and parts of
 body other than hands)"

CSud: PCS *la "to make clean"

Sah: KANURI lám "to wash face"

Kir-Abb: Nil: ENil: TESO [-la "clean": LOAN from
 CSud (C# > Ø; also CSud meaning)]

1299. *laŋ "to not want"

KUNAMA laŋa- "to neglect"

Kir-Abb: Nil: WNil: OCOLO laŋ "to be tired of, dis-
 gusted with, not care for"

Kir-Abb: Nil: SNil: DATOGA *laŋ-ud "to be satis- [stem plus NS *tʰ cont.; semantics: to
 fied, sated" not want any more]

Rub: IK [ɩláláŋ- "to eat or drink something that is [*i- v. class pref. plus stem, partially
 still too hot": LOAN (expected ɬaɬaŋ-)] redup.]

If the Northern Sudanic sound shift seen in roots 1245-1247 was general to all word-initial liquid environments (see note to root 1293 for this possibility), then an alternative possible reconstruction of this verb would be *lag.

1300. *lá'w "to grasp"

Koman: UDUK lá mèɗ "to catch" (mèɗ "hand")

CSud: PSC *lɔ "to grasp"

KUNAMA lewe- "to stretch out hand to give, re- [< *la'wa'y, stem plus NS *'y ess-act.,
 ceive, etc." with regressive V assim.]

Sah: KANURI lówú "to pluck" [stem plus NS *-uh ven.]

Sah: KANURI láláú "to rub, touch, fondle" (H) [preceding v. partially redup. as iter.]

Astab: Taman: TAMA ala "arm" [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: WNil: JYANG lɔ "to have"

Kir-Abb: Nil: SNil: Centr.Kal. *lawt "load" [stem plus NS *tʰ or *ț n. suff., i.e.,
 something picked up and carried; n.
 deriv. of v. seen in Nandi reflex]

Kir-Abb: Nil: SNil: NANDI la "to carry on back"

Rub: IK ɬób-ɛt- "to pick, choose, take" [stem plus IK ven.]

1301. *lá'wtʰ "to reach out to take" [root 1300 plus NS *tʰ cont.]

Sah: KANURI lòt "to reach, stretch out for"

SONGAY lóotì "to take something out of a hole [stem plus NS *-i itive]
 with the finger"

Kir-Abb: Nil: PSNil *lɔ:t "to extract incisor tooth"
 (DATOGA lɔ:d; Kalenjin *Rɔ:t)

Kir-Abb: Nil: SNil: Kalenjin [*lat "to castrate":
 LOAN from Rub]

Rub: SOO lɔt "to castrate"

Sahelian semantic innovation: shift of focus of the verb from the reaching out itself to the extraction of something after having reached out for it. Reaching-to-take was surely the original sense of this extended root because adding a continuant extension to a verb meaning "to grasp" (see root

1300) would have made the action ongoing and hence changed the focus from the single act of grasping to the motion surrounding that act, i.e., the reaching.

1302. *la̋'y OR *la̋'y "to slow down"

KUNAMA laiko- "to work sluggishly"	[stem plus NS *kʰ iter.]
KUNAMA laikolaikoma "lazy, slow"	[Kunama v., redup., plus NS *m adj. affix]
Sah: KANURI lâî "to slacken (intr.)"	
Maban: MABA lalai "tiredness"	[partially redup. stem]
Kir-Abb: Nil: WNil: OCOLO layo "to be slow"	
Kir-Abb: Nil: ENil: TESO -lɪa "to creep, crawl"	[stem plus ENil *-a neuter]

1303. *lè, *lô "to depart (from/to)"

KUNAMA l- "to leave, abandon"	
Sah: KANURI lè "to go"	
FOR el- "to come"	
Maban: MABA -le- "to depart"	
Astab: NARA ɛːl- "go" (B); ale "go!" (R)	
Astab: Taman: TAMA lo "to go"	
Astab: Taman: MERARIT -el- "to go"	
Kir-Abb: GAAM lēē- "to arrive, come, walk"	[*le'y, stem plus NS *'y ess.act.]
Kir-Abb: Nil: WNil: JYANG lɔ "to go"	
Kir-Abb: Nil: ENil: MAASAI -lo "to go"	
Kir-Abb: Nil: ENil: MAASAI -lotú "to come"	[stem plus MAASAI -tú convers. (see also root 1228 for this ext.]
Rub: IK ɬɪats- "to migrate, leave and stay in the bush, be foreign"	[stem plus NS *-a dispunc. plus NS *ṣ caus. as intens/extend.?]
Rub: IK ɬɪam, PL. ɬɔɪk "foreigner, enemy"	[stem plus NS *w n. suff. (?) plus Ik pl./sing. suff.; semantics: see preceding Ik v. entry]

For other Nilo-Saharan verbs of motion of #CV# shape with alternative vowel realizations, see roots 708, 1029, 1289, 1372, and 1472. The distribution of alternates in this instance suggests that the original verb was *le "to depart (to)," and the *lo variant, with specific meaning "to go," may not have arisen till Eastern Sahelian times.

1304. *léh / *lîh "to seep"/"to moisten, wet down"

Koman: UDUK lí'álì "wet, damp, moist"	[adj. by redup. stem]
CSud: PCS *le "to trickle, seep, flow"	
CSud: MM [*lɛ "milk": LOAN from Bari group of ENil]	
Sah: KANURI kálí "pus, discharge"	[NS *kʰ n. pref. plus NS *a- n. deriv. suff. plus 2nd stem]
Sah: KANURI kɔ̀lì "fresh, green, newborn, not well done, not ripe, wet"	[NS *kʰ n./adj. pref. plus 2nd stem]
FOR li- "to wash"	
FOR dìlì "cold season"	[FOR d- n./adj. sing. pref. plus 2nd stem; semantics: wet > cold (of water, etc.)]
Astab: Nub: DONGOLAWI dɛttɛ "to drip, fall in drops"	[1st stem plus *tʰ cont. (gemin. as iter.?) plus NS *'y ess.-act.]
Astab: Nub: NOBIIN díis "blood"	[2nd stem plus NS *s or *θ n. deriv. suff.]
Astab: Nub: NOBIIN déeg- "bewässern"	[1st stem plus NS *k caus.]

Kir-Abb: Nil: WNil: OCOLO lɛwo "to be soft, watery"	[1st stem plus NS *w n./adj. suff., with v. < earlier adj./n.]
Kir-Abb: Nil: WNil: JYANG leuleu	[v. as in OCOLO, redup. to form adj.]
Kir-Abb: PENil *-lɪ- "to filter, strain"	[2nd stem]
Kir-Abb: PENil *lɛ̂ "milk"	[1st stem]
Kir-Abb: Nil: ENil: MAASAI enk-oilioólio, enk-oileélio "dew"	[Maa *-oi- n. deriv. pref. plus 2nd stem redup.]
Kir-Abb: Nil: ENil: TESO -lɛlɛ "to flow"	[1st stem redup. as dur.]
Rub: NYANG'I ɬeu "river; well"	[1st stem plus NS *w n. suff.]
Rub: NYANG'I ɬiatu "spittle"	[2nd stem plus NS *tʰ n. suff.]

For other examples of the semantics of this kind of stem vowel alternation, see note to root 126.

1305. *lɛ̄ːh "to watch, observe"

KUNAMA li- "to look"	
KUNAMA lili- "to look attentively"	[redup. stem as intens.]
KUNAMA lilik- "to watch attentively, comtemplate"	[redup. stem plus NS *kʰ iter.]
Sah: KANURI lí "to learn"	
FOR la- "to see (past)"	[stem plus NS *-a punc., i.e., "watch" > "see"]
FOR lauŋ- "to know"	[FOR v. "to see" plus NS *ŋ punctive]
Kir-Abb: Nil: WNil: OCOLO lɛt̪ "to see"	[stem plus NS *θ intens.]
Kir-Abb: Nil: WNil: OCOLO lyëw "to investigate, spy out"	[stem plus NS *w punc.]
Kir-Abb: Nil: ENil: MAASAI -leén "to scout"	[stem plus NS *n dur.]
Rub: IK ítʲye- "to know"	[*i- v. class pref. plus stem]

1306. *lɛ̂pʰ "to grasp, hold"

CSud: PCS *le "to hold"	
CSud: PCS *kele "hand"	[NS *kʰ n. pref. plus stem]
KUNAMA -laf- "to catch a thing dextrously to keep it from falling"	
SONGAY lèfì "to push something against wall, to corner, encircle, wedge (someone)"	
Kir-Abb: GAAM lɛw "granary, grainstore"	[stem plus NS *-i itive; semantics: to hold against something else]
Kir-Abb: Daju: LAGAWA leb- "to pick up"	[semantics: place for HOLDING grain]
Kir-Abb: Nil: ENil: PTung'a *-lep "to milk"	

1307. *lɛ̄ːp' "to be feeble"

KUNAMA libo- "to be weak, infirm, feeble"	
KUNAMA liboliboma "weak, feeble"	[redup. stem plus NS *m adj. affix]
Sah: KANURI lívét "having a thin belly; ideophone of weak hungry feeling"	[stem plus NS *tʰ cont.]
SONGAY léebù "to be paralyzed"	[stem plus NS *-uh n./adj. deriv. suff., with v. < earlier adjectival sense]
Kir-Abb: Daju: SILA lepelepega "soft"	[redup. stem plus NS *k adj. suff.]
Rub: Wn Rub *ɬɛɛɓ "slow"	
Rub: SOO lalaɓ, PL. lɛlɓi "soft"	[partially redup. stem; PRub *ɬ > SOO /l/]

1308. *lɛ́yl "to disappear"

Sah: ZAGHAWA lél- "to die"	

SONGAY lílì "to disappear by magic"

Kir-Abb: Nil: PSNil *lí1 "to depart of spirit or consciousness from body" (in fainting, falling asleep, dying: Kalenjin "to die of old age"; Datoga "to sleep")

1309. *lὲ "in, at"

CSud: PCS *le "in" (postp.)   [presumed earlier vowel harmony variants *lɛ/*le relevelled to *le]

KUNAMA -la "suffix of being in a place" (loc.)   [spread of Kunama noun-final *-a to this attached noun suffix]

Sah: KANURI -là "belonging to"

Sah: KANURI -làn "in, on, by means of"   [KANURI là plus KANURI -n "in, on, by"]

FOR -le << locative marker >>

SONGAY là "dans, dedans" (postp.)

Astab: NARA li "in"

Astab: PNub *-law "on, in, at, to" (loc.) (NOBIIN -lá; DONGOLAWI -lo; etc.)   [stem plus NS *w n./adj. suff]

Kir-Abb: BERTHA li "in, at, to"

Kir-Abb: NYIMANG -al, -il "place of" (loc.)

Kir-Abb: NYIMANG lὲ "place"   [*lɛ-y, stem plus NS *y n. suff.?]

Kir-Abb: Nil: ENil: LOTUKO li-/lɪ- << locative marker >>

Eastern Sahelian innovation: development of alternate new shape with high front vowel *i.

1310. *àlέ "place" [NS *a- n. deriv. pref. plus root 1309]

Koman: UDUK álàm "place"   [stem plus NS *m n. suff.]

FOR al "where?"

Kir-Abb: GAAM áldá "earth, land"   [stem plus NS *tʰ n. suff.; semantics: place > "land, country" > "earth"]

Kir-Abb: Nil: SNil: Kalenjin *al "place"

1311. *lɛy "to lap"

CSud: PCS *le "to lick"

FOR daali, PL. kaali "tongue"   [NS *a- n. deriv. pref. plus stem]

FOR lem- "to lick"   [stem plus NS *m iter. concis.]

Astab: NARA li "to drink"

Astab: Taman: TAMA li "to drink"

Astab: PNub *di: "to drink" (KADARU dì: "drink!")

Kir-Abb: Nil: PSNil *lɛ(y) "to drink" (DATOGA lɛ(h)-; Kalenjin *ʀɛ)   [*h < pre-Datoga *y]

Rub: Wn Rub *ɛł "thirst"

Rub: IK łiełia "to be gorged" (tone unknown)   [redup. stem as intens.]

Eastern Sahelian semantic innovation: A shift in meaning from lapping or licking, present in the Central Sudanic and For reflexes, to drinking is directly attested in Astaboran and Kir-Abbaian and underlies the meaning of the simple root in Ik.

1312. *líb OR *líɓ OR *líp "to be(come) wet"

Sah: KANURI láp "to immerse"

Kir-Abb: Nil: WNil: OCOLO líp "cold, cool"

Kir-Abb: Nil: WNil: JYANG liplip "clean"   [adj. by redup. stem; semantics: to wet > to wash > to clean]

Kir-Abb: Nil: PENil *-lɪb- "to be wet" (BARI líɓi "damp, moist"; KARIMOJONG -lɪb- "to be green")   [Karimojong semantics: see KANURI "fresh, green, not ripe, wet" (root 1304 above)]

Rub: SOO líblíben "to shimmer (of water, heat haze)"   [redup. stem as iter. plus NS *n dur.]

Rub: IK [lɪłɓ- "to be green": LOAN from Karimojong]   [*i- v. class pref. plus stem; semantics: see Karimojong entry]

Other possible reconstructions: *líb or *líɓ or *líp. The Soo cognate does not help in the reconstruction of the final consonant because the source of the item, J. Weatherby, does not mark implosive /ɓ/ separate from /b/. If the Northern Sudanic sound shift seen in roots 1245-1247 was general to all word-initial liquid environments (see note to root 1293 for this possibility), then the reconstructions *líb or *líb would be ruled out.

1313. *lim "to moisten"

FOR lim- "to moisten"

Astab: Taman: TAMA lɪmolɪmo "mist"   [redup. stem]

Kir-Abb: Nil: WNil: OCOLO lïm "to cool down"

Kir-Abb: Nil: PENil *-lɪm- "to rain" (TESO -lɪm; PENil *-lɪlɪm- "to drizzle")   [PENil: partially redup. as iter.]

Kir-Abb: Nil: ENil: TESO [-lɪlɪm "cold, cool": possible loan from WNil (same semantic innovation as Luo (OCOLO) group)]   [if not loan, then semantic influence from Luo group]

Probable Eastern Sahelian semantic innovation: narrowing of the application of the verb to moistening by precipitation. If the Northern Sudanic sound shift seen in roots 1245-1247 was general to all word-initial liquid environments (see note to root 1293 for this possibility), then another possible reconstruction of this root would be *lib.

1314. *lí:m "to shrink back, sink down"

Koman: UDUK límàn "smaller of two things"   [stem plus NS *n n./adj. suff.]

Sah: KANURI lím "to wither, shrivel up"

Kir-Abb: Nil: WNil: OCOLO lim "to probe for depth"

Kir-Abb: Nil: ENil: BARI lim-ön "to dive"

Nilotic innovation: narrowing of meaning of verb to sinking of something into the water.

1315. *lí:ŋk' "to swallow"

CSud: PCS *ɔli "to swallow"   [CSud *V- pref. plus stem]

Sah: KANURI língét "ideophone of weak, hungry feeling"   [stem plus NS *tʰ n. suff. or cont.]

FOR liiŋ- "to swallow"

Maban: MABA líŋg- "to swallow"

Kir-Abb: Nil: WNil: NAATH liʌk "to swallow"

Kir-Abb: Nil: WNil: JYANG liek "to swallow"

Kir-Abb: Nil: ENil: TESO -likor "to swallow"   [stem plus TESO itive (?)]

Rub: SOO [lik- "to swallow": LOAN from ENil (expected *liǵ)]

1316. *lô:b OR *lô:ɓ "detached horn (as container, instrument, etc.)"

Koman: UDUK [àpūlúŋ "musical horn or whistle": LOAN from Bertha-related language]   [NS *a- n. deriv. pref. plus form seen in Bertha reflex below]

CSud: ECS *olu "horn instrument"   [CSud *V- pref. (NS *o- n. deriv. pref.) plus stem]

FOR dòlbá, PL. kòlbá "horn"

[stem plus probably NS *-ah n. deriv. suff.]

Kir-Abb: GAAM bɔ́lŋè "cupping horn"
[metathesized stem plus NS *ŋ n. suff.]

Kir-Abb: BERTHA búlùŋ "horn"
[metathesized stem plus NS *ŋ n. suff. (*boluŋ, with regressive V assim.)]

Kir-Abb: Nil: SNil: DATOGA bòːléːdà "beer drinking horn" (PSNil *poːl-)
[metathesized stem plus SNil sing. n. 2ndary suff.]

Kir-Abbaian phonological innovation: metathesis of the two stem consonants. Jebel morphological innovation: addition of the *ŋ noun suffix to the stem. The different morphological histories of the root in For and Bertha indicate that the parallel generalization°of its meaning in the two languages should be viewed as independent developments. The borrowing of the root by Uduk, apparently from earlier Bertha, in a technical sense would seem to confirm that the meaning shift in Bertha at least was, historically speaking, a fairly recent event.

1317. *lòːb OR *lòːɓ   "to miss, fail (to do)"

Koman: UDUK lòɓ "to miss the mark"
FOR luf- "to miss"
[regularity of /u/ for *o: here still needs to be established]

FOR lobe "impotent" (B)
[probable [lobbe], with normal For adj. structure #CVCCV# < #CV(V)C]

Other possible reconstructions: *lòːb or *lòːɓ. See note to root 1293 on possible non-reconstructibility of *b here.

1318. *loɠ OR *log   "land"

KUNAMA laga "land, ground, region, world"

Astab: NARA log, lug, PL. lokka "earth, land, home area, place"
[pl.: *log-ka, stem plus NS *kʰ pl. marker]

Kir-Abb: NYIMANG lò(gò) "mud"

Kir-Abb: Daju: SHATT lǝkk "dust"

Kir-Abb: Nil: WNil: OCOLO [lago "district, rule, state, kingdom": LOAN (expected *logo)]

Kir-Abb: Nil: SNil: DATOGA làqàmêːdà "stone"
[pre-Datoga *lokon- "stem plus NS *n n. suff.; regular NS *G > PSNil *k]

Apparent Kir semantic innovation: A shift from "land" to ground in some specific form, perhaps "soil," seems required by the Nyimang, Shatt, and Datoga reflexes. It is possible that either Kunama or Nara borrowed its word from the other, but if so this event would have taken place before PNS short *o > Kunama /a/. See note to root 1293 on possible non-reconstructibility of *ɠ here.

1319. *lòːkʰ   "to swell up"

KUNAMA lukuti- "to swell"

Sah: KANURI làk "to rot, spoil"
[stem plus NS *tʰ cont.]
[semantics: from the swelling of matter that generally accompanies its putrefaction]

FOR dòlgòɲ "wide"
[FOR d- n./adj. sing. pref. plus stem plus NS *ɲ n./adj. suff.]

Kir-Abb: GAAM lòɔ̀ɲà "hump (of animal)"
[*lɔ̀gɔ̀ɲà stem plus NS *ɲ n. suff.]

Kir-Abb: Nil: WNil: OCOLO lok "to swell up (of side of face or head)"

Rub: IK łokóm- "to sprout"
[stem plus NS *m iter. concis.]

1320. *lòːɭ OR *lòːɭ   "to spill out"

Sah: KANURI lə́rə́ "to dump onto"
[stem plus NS *-i itive added since NS *ɭ > r /_# in Kanuri]

FOR lòòlòŋ "stream"
[stem plus NS *ŋ n. suff.]

Kir-Abb: Nil: WNil: OCOLO lool "to run, seep (as of sore)"

Kir-Abb: Nil: WNil: JYANG lol "brook"

Kir-Abb: Nil: ENil: TESO [-lɔluar "to rinse": LOAN (expected *-lɔj), probably from WNil]
[stem plus NS *-uh ven. plus Ateker itive]

Kir-Abb: Nil: ENil: BARI lɔr "dampness (of floor)"
[< earlier *lɔd: Bari /d/ < ENil *j]

Kir-Abb: Nil: SNil: NANDI celole "dysentery"
[Kalenjin *ceːp- n. forming pref. plus stem plus NS *-eh n./adj. suff. (probable phonology /ceːloːleː/)]

1321. *lóːɭ   "to collect and take away"

Koman: UDUK lól "to gather honey"

Sah: KANURI [lór- "to collect and take away": LOAN (expected *lár)]

Astab: Nub: NOBIIN dóol- "to collect"

Kir-Abb: Nil: WNil: NAATH lol "to take out, pluck out"

1322. *lóŋkʰ   "crown of head"

CSud: PCS *lɔ "crown of head, crest"

KUNAMA [koloka "creast": LOAN from language in which NS *ŋkʰ > *k and *o > *o (Nara?)]
[NS *kʰ n. pref. plus stem]

SONGAY lóŋkò "fontanelle anterieure"

Kir-Abb: GAAM lóɔ́i "fontanelle"
[< *logoi-, stem plus NS *'y n. suff.]

Kir-Abb: BERTHA àlú "head"
[NS *a- n. deriv. pref. plus stem (with regular NS *nkʰ > Bertha /h/, with /h/ > [Ø] /_#]

Kir-Abb: Nil: ENil: MAASAI ɛ-lúkúnyá "head"
[stem plus NS *ɲ n. suff.; MAASAI ɛn-dukúyà "head" is the reflex of a distinct NS root, 786]

1323. *lóːs   "to be immersed"

Koman: UDUK lós "to sink, be drowned"

SONGAY lòoséỳ "valley"
[stem plus NS *'y n. suff.; semantics: "valley" (in which stream flows)]

Kir-Abb: Nil: WNil: OCOLO lwot "to wade, ford"

Kir-Abb: Nil: ENil: TESO -lot "to wash (things)"

1324. *lɔ́   "blade, point (of tool or weapon)"

CSud: PCS *lɔ "ax"

Sah: KANURI lói "ideophone of something pointed"
[stem plus NS *'y ess.-act. ("be pointed")]

SONGAY lóló "big awl"
[redup. stem as augmentative?]

Astab: NARA la "spear"
[stem plus NS *-ah n. suff.?]

Rub: NYANG'I łɔin "knife"
[stem plus NS *n n. suff.]

1325. *lúh   "to take loose, take off, take apart"

Koman: UDUK lú' "to shed skin"

KUNAMA lu- "to extirpate"

Sah: KANURI lús "to break loose"
[stem plus NS *θ intens.]

Kir-Abb: Daju: SHATT lui "to chop"
[stem plus NS *'y ess.-act.]

Kir-Abb: Nil: ENil: BARI lun-du "to skin (something small)"
[stem plus NS *n dur.]

1326. *lúh OR *lú:h "to leaf out"
Koman: UDUK lú' "to sprout again after being cut"
Sah: Bodolean *kɔ́lú "leaf" (KANURI kɔ́lú; DAZA kolu) — [NS *kʰ n. deriv. pref. plus stem]
Kir-Abb: Nil: WNil: OCOLO luṭ "to leaf out" — [stem plus NS *θ intens.]

1327. *lú:k OR *lú:kʰ OR *lú:g "to go out, come out"
Koman: UDUK lúkʰ "to miss, of persons, by leaving before other comes; to pass from one to other"
CSud: ECS *lu "to go away, part company"
Sah: KANURI lúk- "to go out, come out"
Kir-Abb: GAAM lúúd, PL. lùùg "foot/leg, hoof, paw"
Kir-Abb: C.Jebel: MOLO luu "foot"
Kir-Abb: Nil: WNil: OCOLO lwok "to accompany a visitor part way on his journey"

1328. *lú:ŋ "to bend, curve (tr.)"
Koman: UDUK lúŋ "to bend back, bow"
KUNAMA -lullun- "to fatten" — [redup. stem with example of sporadic Kunama *ŋ > ɲ /V_ shift; semantics: from roundness of shape associated with fatness]

Sah: KANURI lúngói "ideophone of something crooked or zigzagging" — [stem plus NS *w punc. plus NS *'y ess.-act.]
Kir-Abb: Nil: WNil: OCOLO luŋ "to hang with head down, stand on head"
Kir-Abb: Nil: PENil *-luŋ-/*-loŋ "to curve, bend" (MAASAI -loloŋa "round"; TESO -luŋurur "round," a-luŋuret "circle"; BARI luŋ-gö "to go along staggering," loŋ-ga "to wind (as snakes), to go around") — [Maasai: partial redup.; 1st Teso reflex: stem plus NS *r iter., partially redup.; 2nd Teso entry: stem plus NS *r iter. plus ENil *-et deverb.]

1329. *lwátʰ "to drip"
CSud: PCS *lɔ "to drip"
SONGAY lótí "to drip" — [stem plus NS *-i itive]
Kir-Abb: Surmic: S.Surmic: MURSI lɔtɔgì "wet" — [stem plus NS *k adj. suff.]
Kir-Abb: Nil: WNil: OCOLO lwat "cold of the rainy season"
Kir-Abb: Nil: WNil: PTung'a *-lwat- "to urinate" (MAASAI -lút, TESO -lwat)
Kir-Abb: Nil: SNil: Kalenjin *Rɔ:t "to sweat"
Rub: IK [kirot "sweat": LOAN from SNil (expected *kɨɬɔt-)] — [NS *kʰ n. pref. plus stem]

PROTO-NILO-SAHARAN STEM-INITIAL *ɬ

1330. *ɬaɓ OR *ɬab OR *ɬap' "to dry out (intr.)"
KUNAMA alaba "dry" — [NS *a- n./adj. deriv. pref. plus stem]
KUNAMA lallaba- "to dry" — [partially redup. stem as dur.]
Astab: Taman: SUNGOR labit "dry" — [stem plus NSud *ṭ n./adj. suff.]

Kir-Abb: Nil: SNil: DATOGA šábɛ́:d- "not ripe, uncooked" — [< *ɬ'abɔːt, stem plus NSud *tʰ n./adj suff; semantics: to dry out > be hard as of unripened fruit or uncooked food]

For the possible non-reconstructibility of *b here, see root 1293. Possible Eastern Sahelian innovation: Derivation of an adjective from the verb by addition of the Nilo-Saharan adjective and noun suffix in *ṭ may be present in both Taman and Southern Nilotic languages. The difference in the vowel component of the suffixation suggests, however, that separate derivations are probably involved.

1331. *ɬá:ɓ OR ɬá:p' "to pat"
KUNAMA lamma- "to grope, handle" — [*lafm-, stem plus NS *m iter. concis.]
Sah: KANURI láláp "to daub, pat" (H) — [partially redup. stem as iter.]
SONGAY lápté "to hit with the flat of the hand" — [stem plus NS *tʰ cont. plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)]

Kir-Abb: GAAM láw(n)- "to touch" — [stem (plus NS *n dur.)]
Rub: IK ɪlɔɓílɔɓ- "to plaster house with mud and cowdung" — [*i- v. class pref. plus stem redup. as iter., i.e., daub plaster on house]

1332. *ɬá:w "to rise, go higher"
KUNAMA lau- "to jump"
Sah: KANURI láu "ideophone of steady progress forward"
Sah: KANURI lói "ideophone of something moving upward" — [stem plus NS *'y ess.-act.]
Sah: ZAGHAWA lau- "to stand"
Astab: Nub: NOBIIN dàwwí "big"
Kir-Abb: Nil: WNil: OCOLO läw "to improve, get better" — [stem plus NS *-ih or *'y n./adj. suff.]
Rub: PRub *ɪlɔ- "to rise, increase" (SOO ílɔ ac "to rise (of sun)"; IK ɪlɔy "more than") — [*i- v. class pref. plus stem; SOO: v. plus SOO -ac ven.; IK: stem plus *y n./adj. suff.]

1333. *ɬá:w "far" [possible nominal derivative by tone shift from root 1332]
Koman: UDUK áḓáná' "at a distance" — [NS *a- n./adj. deriv. pref. plus stem plus NS *n modif. suff. plus *-Vh n./adj. deriv. suff.]

CSud: PCS *lɔ "far; wide"
Astab: Taman: TAMA la:y "long"
Astab: Taman: TAMA lawni "far" — [stem plus NS *'y adj. suff. (*la:w-y-)]
Kir-Abb: proto-Daju *loi "long" — [stem plus NS *n modif. suff.]
Kir-Abb: Surmic: SESurmic *ra(:)m- "long" — [stem plus NS *'y n./adj. suff.]
Kir-Abb: PNil *ɬ'a:w OR *la:w "far" (WNil: OCOLO lääw; SNil: Kalenjin *lo:) — [stem plus NS *m adj. affix]
Kir-Abb: Nil: ENil: TESO [lwana, PL. lwaka "far": LOAN from CSud (expected *jɔ)] — [root *lo- plus *-ana/*-aka sing./pl. suff.]
Kir-Abb: Nil: ENil: MAASAI -lalá "to be wide": LOAN (expected *jɔ) possibly from Rub?]
Rub: IK lalú'j "wide" — [*lalawi'j, stem plus NS *'y n./adj. suff., partially redup.]

Eastern Sahelian innovation: derivation of adjective *lawi'y "long" (> "wide" in Ik) by addition of *'y noun/adjective suffix. The Southeast Surmic adjective is a separate derivation by addition of the Nilo-Saharan adjective affix in *m.

1334. *ɟàːwŋ "to shake (intr.)"

Sah: KANURI lànd- "to shake, churn" (H)

Kir-Abb: Nil: WNil: OCOLO laaŋ "to be restless, tossed about, constantly moving"

Kir-Abb: Nil: ENil: TESO -jaŋijaŋ "to quake, shake, rock (intr.)" [redup. stem as iter.]

Rub: IK ɨlɔ́lɔŋ-, ɨlɔŋílɔ́ŋ "to shake (intr.)" [redup. stem as iter.]

*[stem plus NS *ʈ caus.]*

1335. *ɟáːʔw "to harm"

Koman: UDUK ɗáát̪ú' "having evil eye; wizard" [stem plus NS *ʈ' n./adj. suff. plus NS *-uh n. deriv. suff.]

KUNAMA lau- "to abuse, transgress"

Sah: KANURI làrû, lòrû "harm" (lòrù "to harm") [stem plus NS *r n./adj. suff. plus NS *-uh n. deriv. suff.; v. < n. by tone shift]

SONGAY láalà "morally bad; to be bad, evil, wicked" [stem plus NS *r n./adj. suff as in Kanuri (NS *r > l /V_ in Songay); v. < adj.]

Apparent Saharo-Sahelian morphological innovation: The derivation of a noun for "harm," or possibly an adjective "harmful, bad," by adding the Nilo-Saharan noun/adjective suffix in *r to the stem (*ɟaːwr), appears in the Kanuri and Songay reflexes.

1336. *ɟéː OR *ɟɛː "to rise"

Sah: KANURI lí "to grow"

FOR le- "to wake up (intr.)"

FOR ley- "to swell" [stem plus NS *'y ess.-act.]

Kir-Abb: PNil: *lʼeːy "to swell" (WNil: OCOLO leyo "goiter"; MAASAI jieyú "to swell," en-jíán "swelling") [stem plus NS *'y ess.-act.; Maasai v.: v. plus *-uh ven.; Maasai n.: v. plus NS *n n. suff.]

Rub: IK liod- "to be between liquid and solid (of porridge)" [stem plus NS *d adj. suff., with v. < earlier adj.]

Apparent Sahelian innovation: The addition of the Nilo-Saharan *'y essive-active, producing the meaning "to swell," is seen in the For and the Nilotic reflexes.

1337. *ɟél OR *ɟɛ̀ɭ "to be sweet"

Koman: UDUK ɗélɗél "sweet" [adj. by redup. stem]

CSud: PCS *le "sweet"

Sah: KANURI [lélé "sweet; to be sweet": LOAN, presumably from CSud (C > Ø /_#)] [redup. stem]

FOR lílgá "sweet" [stem plus NS *k adj. suff.]

1338. *ɟèːl "to rub, scrub (surface of something)"

Koman: UDUK ɗèlèláɗèlèl "clean (as of white objects)" [adj. by partially redup., redup.]

Sah: KANURI làrwà "to rub, spread on roughly" [stem plus NS *p extend. plus NS *-a dispunc.]

SONGAY lèelè "to wash dishes"

Kir-Abb: Nil: WNil: OCOLO lyɛl "to shave, scrape the top of the ground"

1339. *ɟèɭ "to be eager for, assiduous in doing"

CSud: PCS *le "eagerness, assiduousness"

KUNAMA lella, lelna- "to be gluttonous, greedy"

Kir-Abb: Nil: WNil: NAATH lel- "to eat"

Rub: IK lel- "to be hungry"

*[stem plus NS *n dur. or else NS *n modif. suff., with v. < earlier adj.]*

Northern Sudanic semantic innovation: narrowing of meaning to an eagerness for food.

1340. *ɟér "to cut apart"

Koman: UDUK ɗér bwà "to cut in half lengthwise, tear, split" (bwà "in")

CSud: PCS *le "blade"

KUNAMA -lel- "to wound, puncture, vaccinate"

Astab: Nub: DILING dert- "zerschneiden"

Kir-Abb: Nil: WNil: NAATH lier "to cut" *[stem plus NS *tʰ cont.]*

1341. *ɟéːr "to hurry"

Koman: UDUK ɗér "to walk quickly"

KUNAMA lili- "to hurry, be in a great hurry, bustle"

Kir-Abb: NYIMANG lɛlɛ "to run (in a body)"

Kir-Abb: Nil: WNil: OCOLO lel "to hurry"

Progressive liquid assimilation took place separately in Kunama, Nyimang, and Ocolo (see Commentaries to consonant tables in Chapter 2 for the statement of the appertenant rules).

1342. *ɟèh "to light, kindle"

Koman: UDUK àɗèɗè' "wand for lighting fire by friction" [NS *a- n. deriv. pref. plus partially redup. stem as iter.]

CSud: PCS *lɛ "to light, light up"

KUNAMA le- "to light a fire"

Kir-Abb: NYIMANG lɛù, DINIK láwè "to cook" [stem plus NS *w punc.]

Kir-Abb: Nil: WNil: OCOLO lɛt̪ "hot" [stem plus NSud *ʈ n./adj. suff.]

Kir-Abb: Nil: WNil: OCOLO lɛw "hot season" [stem plus NS *w n. suff.]

Kir-Abb: Nil: WNil: OCOLO leɲ "to heat up, become hot" [stem plus NS *n dur. > intr.]

Kir-Abb: Nil: SNil: Kalenjin *lyɛl "to make lightning, flash" [stem plus NS *l iter.]

Rub: PRub *lɛuʼj "to burn (intr.)" (SOO lɔy; IK lɛúz "charcoal") [stem plus NS *w punc. plus NS *'y ess.-act. (*lɛhuʼy)]

Rub: IK iléúr- "to use a light ot look for something" [*i- v. class pref. plus stem plus NS *w punc. plus NS *r iter.]

1343. *ɟèɭ "to leave (off), let, allow"

Koman: UDUK ɗàl "to allow, let, leave, permit"

Koman: UDUK ɗàl kʼōɗ "to leave behind" (kʼōɗ "behind")

Koman: UDUK ɗàl pʼén "to leave completely" (pʼén "down")

CSud: PSC *lɛ "to like, love"

KUNAMA -lel- "to be quenched (of thirst)"

Kir-Abb: GAAM làɭ- "to go out, emigrate; to be free"

[semantics: the ideas of liking and allowing/permitting are often lexically linked in NE African languages]

[i.e., to leave off feeling thirsty]

1344. *ʃɛŋ / *ʃiŋ   "to bend to the side"/"to turn back and forth (intr.)"

Koman: Gumz: KOKIT liŋ- "to turn"

KUNAMA leŋ- "to raise the head to see; to lean
    sideways"

KUNAMA liŋ- "to make movements with the eyes,
    as one who has a nervous tick"

KUNAMA liŋai- "to wag the tail"   [stem plus NS *'y ess.-act.]

Sah: KANURI làŋgí "inclining one's head to the   [stem plus NS *-ih n./adj. suff.]
    side in a coquetish way"

Kir-Abb: GAAM kəłŋiir "leaning" (adv.)   [NS *kʰ n./adj. pref. plus stem plus NS
                                                   *r or *d adj. suff.]

For other examples of this kind of stem-vowel alternation and its semantic effects, see note to root 126.

1345. *ʃéːyl   "to shine"   [< probable *ʃehíl, root 1342 plus NS *l iter.]

Koman: UDUK ḍél "shiny"

Koman: UDUK ḍél mò "to glitter" (mò "completed
    action")

CSud: PCS *le "to glow, shine"

KUNAMA lele- "to shine"

KUNAMA ledda "yellow"   [*leld-, stem plus NS *d adj. suff.]

Kir-Abb: GAAM kɔ́łél "whitewash"   [NS *kʰ n. pref. plus stem]

Kir-Abb: Nil: WNil: OCOLO lyɛl "to blaze, burn,
    consume by fire"

Kir-Abb: Nil: PSNil *lʸeːlʸ "white"   [progressive lateral assim.]

Rub: IK lél- "to be visible, be in an open place" [progressive dental assim., *ʃél- > *ʃél-
                                                   (hence, > IK lél-: see root 175); se-
                                                   mantics: cf. GERMAN erscheinen]

Rub: IK lelemán- "to be close to coming out (some [previous Ik v. plus NS *m iter. conc.
    part is already visible"   plus NS *n dur. > incep.]

Kir-Abbaian innovation: A Kir-Abbaian adjectival formation for "white" can be argued to lie behind the Gaam and Southern Nilotic outcomes.

1346. *ʃí OR *ʃíː   "to fight, kill in fighting"

CSud: PCS *li OR *le "to fight"

Sah: ZAGHAWA li "to kill

Astab: PNub *di: "to die" (NOBIIN díˊ-)

Kir-Abb: Nil: WNil: NAATH lia "death"   [stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: ENil: TESO -ji "to fight"

Kir-Abb: Nil: ENil: TESO e-jie "war, battle"   [stem plus Ateker deverb. suff. (NS *y
                                                   or *-eh n. deriv. suff.]

1347. *ʃím   "to darken (of sky)"

CSud: PCS *li "dark"

Sah: KANURI làm "to become night"

FOR nìmà "shade"   [stem plus NS *-ah n. deriv. suff., with
                                                   nasal assim. (*l > n /_Vm)]

Maban: MIMI lem "night"

Kir-Abb: Nil: ENil: TESO -jimijimikinit "to be over- [redup. stem plus ENil benef. plus NS
    cast"   *tʰ cont.]

Kir-Abb: Nil: SNil: DATOGA *šimoq- "cloud"   [DATOGA /š/ < NS *ʃ; *lʸimok-, stem
                                                   plus probably NS *k singul. suff.]

1348. *ʃìṭ' OR *ʃĩṭ'   "to scrape (with implement)"

Koman: UDUK ḍiṭ' "to sweep"

Maban: MABA -lira- "to grind thoroughly" (L)   [stem plus NS *-a dispunc.]

Kir-Abb: Nil: PSNil *lʸit "to whet" (with whetstone)

Rub: SOO [lit "to whet": LOAN from SNil (NS *ṭ'
    > SOO /j/)]

Sahelian semantic innovation: narrowing of meaning to "rubbing (i.e., grinding) with a stone."

1349. *ʃòd   "tip"

SONGAY lòlà "spur, dewclaw"   [stem plus NS *-ah n. suff. > *lora with
                                                    regular Songay lateral assim.]

Kir-Abb: GAAM lɔ̀ld "pimple, wart"   [stem plus NSud *ṭ n. suff.; earlier lɔr-
                                                    with regular Gaam lateral assim.]

Kir-Abb: TEMEIN lolo "head"   [progressive liquid assim. < *lodo]

Rub: IK lɔd (lɔda-) "bushy end of tail"

1350. *ʃòk   "to tell, pronounce on a matter"

CSud: PCS *lo "to tell"

KUNAMA lago- "to conciliate, judge, lay down law"

Sah: KANURI lògó "to pray (God), request indul-   [stem plus assim. form of NS *w punc.;
    gence"   this entry shows influence from re-
                                                    semblant KANURI lòŋgó "to be-
                                                    seech," a reflex of root 1354 below]

Kir-Abb: GAAM lɔɔm- "to blame, reprimand"   [stem plus NS *m iter. concis.]

Kir-Abb: GAAM lɔ́mán "blame"   [GAAM v. plus NS *n n. suff.]

Kir-Abb: PNil *lʸok "to tell" (WNil: OCOLO lok "to [MAASAI: stem plus *-i itive; Kalenjin:
    answer"; ENil: MAASAI -ijokí "to tell"; SNil: stem plus NS *y n. suff.]
    Kalenjin *lokóy "news; story")

1351. *ʃóːkʰ OR *ʃóːk'   "to spill, run out"

CSud: WCSud: KRESH úlú "pool"

KUNAMA luku- "to pour out, pour off, pour"   [CSud *V- pref. plus stem]

Kir-Abb: GAAM lɔ́ɔ́- "to rain"

Kir-Abb: proto-Daju *aləke "saliva"   [NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: PSNil *lʸoːk "tears"

Kir-Abbaian semantic innovation: The Gaam, Daju, and Southern Nilotic reflexes can all be argued to show a meaning shift in the underlying verb root from water moving in a stream to water falling in drops.

1352. *ʃóŋ OR *ʃóŋ   "to run"

CSud: WCSud *lo "to run"

Astab: NARA log- "to be fast, hurry, run"

Rub: IK ʃlóŋ- "to chase (away)"   [*i- v. class pref. plus stem; shift to tr.]

1353. *ʃóh OR *ʃóh   "to dig hole"

Sah: KANURI lá "to dig"

Maban: MABA la "cave, den"   [probable *lo-ah, stem plus NS *-ah n.
                                                    deriv. suff.]

Kir-Abb: Nil: SNil: DATOGA šóːmáːnda "cave,   [*lʸoːmaːn-, stem plus NS *m iter. con-
    den"   cis. (with V lengthening from dele-
                                                    tion of *h) plus NS *n n. suff.]

1354. *ḷɔ̀ŋk "to call"

Sah: KANURI lòŋgó "to beseech"

[stem plus assim. form of NS *w punc. (*-aw > *o /oC_#); see root 1350]

Kir-Abb: TEMEIN lɔŋ "to speak"
Kir-Abb: proto-Daju *laŋ- "to sing"
Kir-Abb: Surmic: S.Surmic: ME'EN rɔŋi "name"

[stem plus NS *-ih or *'y n. deriv. suff.?]

Kir-Abb: Nil: WNil: NAATH lʊŋ "to call"
Kir-Abb: Nil: ENil: BARI [lʊŋ-gi "to ask, request, invite": LOAN, probably from WNil (expected *dʊŋ-)]
Kir-Abb: Nil: ENil: BARI [lɔŋe "news, rumor": LOAN (see preceding Bari entry)]

1355. *ḷú OR *ḷū "to keep watch for, pay attention to"

CSud: PCS *lu "to look at, watch over"
KUNAMA 1u- "to wait for, expect"
Kir-Abb: Daju: LIGURI jul- "to hear"

[stem plus *l iter.]

Rub: IK ılúz- "to doze"

[*i- v. class pref. plus stem plus NS *'y ess.-act. (PRub *-lu'j-); semantics: watch > wait, tarry > rest, doze]

1356. *ḷu OR *ḷuh "to sip"

CSud: PCS *lu "to sip, savor"
Kir-Abb: Nil: WNil: OCOLO lwiy "sweet"

[stem plus NS *'y n./adj. suff.]

Kir-Abb: Nil: ENil: TESO -jʊjʊar "to drink up, absorb, suck (liquids other than milk)"

[redup. stem as iter. plus Ateker itive]

Kir-Abb: Nil: SNil: Kalenjin *lu "to drink milk"

1357. *ûḷ, *ḷùḷ "dark, black"

Koman: UDUK úllá "black dog"
CSud: PCS *lu "black"

[*uḷila, stem plus NS *l n. suff.]

KUNAMA umma "black, dark"

[*ulma, 1st stem plus NS *m adj. affix]

KUNAMA lummu- "to grow dark"

[*lulm-, 2nd stem plus NS *m iter. concis. (or else *m adj. affix with adj. > v.)]

FOR lùùl "night"

[2nd stem with V lengthening present in some For n. derivations]

FOR lúllá "cold"

[2nd stem plus NS *-ah n./adj. deriv. suff. with usual FOR gemin. of medial C in adj.; semantics: night as the time when it cools off]

Maban *lu'y "black" (MABA luluiok; MIMI liwuk]

[stem (redup. in Maba) plus NS *'y n./adj. suff. (plus Maban *-k n./adj. sing. marker)]

Astab: Nub: DONGOLAWI oll- "shadow"

[*olul-, NS *o- n. deriv. pref. plus 2nd stem]

Kir-Abb: NYIMANG lù "shade, shadow"

[1st stem, with VC metathesis or else with #V- > Ø (< *ulu) as in following entry, Nyimang "night"]

Kir-Abb: NYIMANG lowun "night"

[*ulowun, 1st stem plus NS *w and *n n. suff.]

Kir-Abb: proto-Daju *'jul "black"

[2nd stem]

Kir-Abb: Nil: WNil: BURUN uḷ'uḷ "black"

[redup. 1st stem]

1358. *kʰuḷ "darkness" [NS *kʰ n. pref. plus root 1357 preceding]

KUNAMA kullu- "to be dark"

[v. < n.]

Sah: KANURI kɔ̀lùm "black (of night)"

[stem plus NS *m adj. affix]

Sah: DAZA kula "black"

[stem plus NS *-ah n./adj. deriv. suff.]

Kir-Abb: GAAM kuul "shade, shadow"

[< *kuḷul, stem plus NS *l n. suff.]

Kir-Abb: Surmic: MAJANG kulɛːt "night"

[stem plus NS *tʰ n. suff.; NS *ḷ > Surmic *L > MAJANG l]

PROTO-NILO-SAHARAN STEM-INITIAL *l or *ḷ (L)

1359. *láp'úh OR *ḷàp'úh "soil, earth"

KUNAMA lafuca, lafuta "soil, earth"
SONGAY lèbú "earth, soil, country"

[stem plus NS *tʰ n. suff.]

Kir-Abb: Nil: WNil: OCOLO labo "mud, clay, soil, earth, world"
Kir-Abb: Nil: SNil: NANDI lapca "mud"

[*lapya, stem plus NS *'y n. suff.]

1360. *láw OR *ḷáw "leaf"

KUNAMA lawa "leaf"
FOR díló, PL. kíló "ear"

[semantics: < n. in earlier sense "leaf"; for recurrent NS linkage "leaf"/ "ear", see roots 44, 937, and 1496]

Maban: MABA lua "grass"

[stem plus probably NS pl. marker *-a]

Kir-Abb: NYIMANG láwà "grass"
Kir-Abb: NYIMANG alawa "green"

[derivation as in Maba]
[NS *a- attrib. pref. plus Nyimang n.]

Kir-Abb: Nil: PWNil *luam "grass"

[derivation as in Maba plus *m n. suff.]

Other possible reconstructions: *láw or *ḷáw. Trans-Sahel semantic innovation: The Maban and Kir-Abbaian attestations share a meaning shift from "leaf" to "grass," apparently marked morphologically by the addition of the Saharo-Sahelian noun plural suffix *-a (see Chapter 7). The For outcome, on the other hand, implies an underlying maintenance of the older meaning "leaf," thus supporting the exclusion of For from a Trans-Sahel subgroup composed of Maban and Eastern Sahelian (and, as other evidence indicates, Songay).

1361. *léyl OR *ḷéyl "tall grass; grass for thatching"

KUNAMA lela "tall grass used for thatch"
Kir-Abb: GAAM lél "grass, thatch, weed"
Kir-Abb: Nil: WNil: JYANG lil "prairie"

1362. *Lɛ́k' OR *Lɛ́ɠ "side (of body)"

Sah: KANURI lágà "soft part of side below ribs"

[stem plus NS *-Vh n. suff.]

Kir-Abb: Nil: WNil: OCOLO lɛk "edge, border, brink"
Rub: SOO lɛ́ɠɛn, PL. lɛ̀ɠí "kidney"

[SOO ɠ < PRub *k' or *ɠ]

Other possible reconstructions: *Lɛk' OR *Lɛ̃ɠ.

1363. *Liŋ OR *Liːŋ "to become drenched"

KUNAMA liŋa "puddle, pool"
FOR liŋ- "to bathe" (B)

If the Northern Sudanic sound shift seen in roots 1245-1247 was general to all word-initial liquid environments (see note to root 1293 for this possibility), then the reconstructions *Lig or *Liːg would also be possible.

1364. *líp' OR *ꞁíp' "to tie together"

Sah: KANURI lɔ́p "to string beads"
Sah: KANURI lɔ́vá "to plait hair temporarily"   [stem plus NS *-a dispunc.]
FOR dílfàŋ, dílbàŋ "noose trap"   [stem plus NS *ŋ n. suff.]
Kir-Abb: GAAM líwn- "to fix, patch, repair, pack, arrange"   [stem plus NS *n dur.]
Kir-Abb: GAAM [lìf- "to connect, tie": LOAN from language in which NS *p' > f]
Kir-Abb: BERTHA líp'is'- "to tie loosely"   [stem plus NSud *ṱ' iter. intens.]

1365. *lod OR *ꞁod "to make a hole"

CSud: PCS *lo "to bore hole"
SONGAY lòrgótì "to hollow out (of small holes in things)"   [stem plus NS *k intens. plus NS *tʰ cont.]
Kir-Abb: GAAM lɔndɔr "bald, hornless"   [adj. by redup. stem (*lɔrlɔr > lɔndɔr)]
Kir-Abb: Nil: WNil: NAATH lɔrɛ "empty; naked"   [stem plus NS *-eh n./adj. suff.?]

Kir-Abbaian semantic innovation: "to make hole" > "to empty out, make bare."

1366. *lòːꞁ OR *ꞁòːꞁ "deep, thick-layered"

Sah: KANURI lɔ̀rɔ́m "thickness (grain, grass)"   [stem plus NS *m n. suff., added since NS *ꞁ > KANURI r /_#]

Astab: Nub: DONGOLAWI doll- "deep"
Kir-Abb: Nil: WNil: OCOLO lol "deep"

1367. *lɔ́p' OR *ꞁɔ́p' "piece of skin (used as container or carrying cloth)"

KUNAMA lofa "skin, leather bucket to draw water"
Sah: KANURI lɔ̀vɔ̀rú "leather pack blanket of donkey"   [stem plus NS *r and *-uh n. suff.; possible loan (expected *lɔ̀v-?), but may be < *lavəru with regressive V height assim.]
Kir-Abb: GAAM lɔ́bù "umbilical cord"   [stem plus NS *-uh n. suff.]
Kir-Abb: Nil: WNil: NAATH lɔp "placenta"
Kir-Abb: Nil: WNil: JYANG lap "afterbirth"

Kir-Abbaian semantic innovation: An intermediate narrowing of the application of the root to a very specific kind of skin container (in this instance, membranous), the amniotic sac, can be proposed to lie behind the attested Gaam and Nilotic meanings.

1368. *Lùk OR *Lùkʰ OR *Lùk' "to soak"

Sah: KANURI lɔ̀k "to soak, drench"
FOR dàlgàŋ "swamp"   [NS *a- n. deriv. pref. plus stem plus NS *ɲ n. suff.; d- is For n. sing. marker]

Kir-Abb: proto-Daju *luuke "lake"   [long V remains to be explained here]
Kir-Abb: Nil: WNil: OCOLO luk "to soften by soaking"

PROTO-NILO-SAHARAN STEM-INITIAL *w

1369. *wá << third person indefinite pronoun >>

Koman: UDUK wàṱí' "person, he" (pron.)   [stem plus NS *ṱ' and *-ih n. suff.]
Koman: Gumuz *ah(wo) "he, she, it"   [< *a-kʰ-wa, composed of *kʰ article (see Chap. 6, affix 56) plus stem, causing shift from indefinite to definite 3rd person pron. meaning (see also discussion in Chap. 8)]

CSud: Bongo-Bagirmi *(w)u "he, she, it"   [< *we, stem plus CSud *'e 3rd person root (see root 1588)]
CSud: WCSud: KRESH waŋ "all" (pron.)   [stem plus NS *ŋ n. suff. (or relict *ŋ pl. marker? See affix 69 in Chap. 7)]

KUNAMA (w)o- << 3rd person pl. subj. marker of v. >>
KUNAMA kwa, ka "person"   [NS *kʰ n. pref. plus stem]
KUNAMA wama, oma "that (adj); there"   [stem plus NS *m adj. affix]
KUNAMA watta "there"   [stem plus NS *tʰ n./adj. suff.]
KUNAMA weina "that" (pron.)   [*wayn-, stem plus NS *y and *n n. suff.]

Saharan *wa "person" (KANURI kwâ "man, husband"; DAZA, TEDA ao "person"; ZAGHAWA o "person"   [Kanuri: NS *kʰ n. pref. plus stem; Tubu: NS *a- n. deriv. pref. plus stem (*awa > ao)]
FOR dùó, PL. kùà "person"
SONGAY wó, PL. wéỳ "this"
SONGAY -(a)w- << determinate marker >>   [seen in SONGAY -(a)wo, -wa definite n. sing. suff. and -(a)(w)ey definite n. pl. suff.]

SONGAY -kow, -kom << agent noun suffixes >>   [NS *kʰ n. pref. plus stem; NS *kʰ n. pref. plus stem plus NS *m n. suff.]
SONGAY kóy "agent of action; owner"   [NS *kʰ n. pref. plus stem plus NS *y n. suff.]

Maban: MABA w- << 3rd person subj. marker >>
Maban: MABA wak, PL. waŋ "this"
Maban: MABA wi "there"   [stem with NS *-i itive substituted for stem V]
Astab: NARA ku, PL. kua "person"   [NS *kʰ pref. plus stem]
Astab: NARA -o << 3rd person sing. obj. marker >>
Astab: Taman: TAMA on̪ "their"   [*wen, stem plus gen. in *n (affix 91, Chap. 7); for parallel structure in Tama "our," see root 1374]

Astab: Nub: DONGOLAWI weːr "one; someone, anyone; some"   [stem plus NS *r n. suff.]
Astab: Nub: DILING oŋe "that"
Astab: Nub: KADARU -o << 3rd person subj. marker >>   [stem plus NS *ŋ n./adj. suff.]
Astab: Nub: MIDOB on "he, she, it"   [stem plus NS *n n. suff.]
Astab: Nub: MIDOB oŋŋa "they"   [*on-ŋa, stem of Midob 3rd person sing. pron. plus *ŋ pl. suff. (Midob pl. pron. have shape *VC + *-ŋa pl. suff., with nasal assim. of C)]

Kir-Abb: GAAM ɔɲ "meat" | [*wa-ɲ < earlier *waŋ, stem plus NS *ŋ n. suff., as attested in Bertha reflex, with KA *ɲ pl. suff. (as mass pl.) then substituted for original *ŋ (this pl. process appears in number of instances in KA, a notable case being root 1379)]

Kir-Abb: BERTHA ú'úŋ "meat" | [*waŋ, stem plus NS *ŋ n. suff., partially redup. (as mass pl.?)]

Kir-Abb: BERTHA hoa "person" | [NS *kʰ n. pref. (NS *kʰ > BERTHA h) plus stem]

Kir-Abb: NYIMANG kwòn, DINIK kwùn "meat" | [NS *kʰ n. pref. plus stem plus NS *n n. suff.]

Kir-Abb: NYIMANG wa "people"

Kir-Abb: proto-Daju *wane "body" | [stem plus NS *n n. suff.]

Kir-Abb: Daju: SHATT -oŋ "this" | [stem plus NS *ŋ n./adj. suff.]

Kir-Abb: Surmic: MAJANG waːn "skin" | [stem plus NS *n n. suff.]

Kir-Abb: Nil: ENil: TESO a-kwan, PL. a-wa "body" | [sing.: NS *kʰ n. pref. plus stem plus NS *n n. suff.]

Rub: IK kɔn "one; some, other (sing.)" | [NS *kʰ n. pref. plus stem plus NS *n n./adj. suff.]

Probable Northern Sudanic innovation: The use of this root as a noun for "person, human being" rather than as a pronoun appears in Kunama, Saharan, For, and Eastern Sahelian languages. Probable further Northern Sudanic innovation: use of *wa as the verb marker of third person (examples in Kunama, Maban, and Nara and Nubian of Astaboran). Kir-Abbaian innovation: shift of meaning in unmodified noun from "person" to "body." Kir innovation: The addition of the Nilo-Saharan noun suffix in *n to the noun in the meaning "body" is attested directly in Daju and Nilotic examples and indirectly in Nyimang ("meat") and Surmic (Majang "skin"). The preservation of the simple stem as the plural in Eastern Nilotic suggests that *n was added originally as a singular marking. Jebel morphological cum semantic innovation: the Gaam and Bertha words for "meat" can both be explained as underlying *waŋ, stem plus the Nilo-Saharan noun suffix in *ŋ, with the Gaam shape derived as a mass plural by substitution of the Eastern Sahelian *ɲ plural marker, which is commonly paired with *ŋ singular.

1370. *wá   "to pick, pull off"

Koman: UDUK wá "to pick or pull off"
CSud: ECS *wa "to detach"
KUNAMA ot- "to extract, pull out, remove" | [stem plus NS *tʰ cont.]
Astab: Nub: NOBIIN óos- "to extract, take out of" | [stem plus NS *s prog.]
Kir-Abb: Nil: WNil: *wat "to take out, pull out" | [stem plus NS *tʰ cont.]
Rub: IK ɪwáwɛ́- "to stroke, caress" | [*i- v. class pref. plus stem redup. as iter., i.e., pick at with the fingers repeatedly]

Rub: IK [wa- "to harvest, collect (fruit, etc.): LOAN (expected *aw- or *o-), from CSud or Koman]

1371. *wá   "to pour (tr.)"

KUNAMA wei-, wai- "to empty, pour very small solid things" | [stem plus NS *'y ess.-act.]

KUNAMA weina- "to fill" | [stem plus NS *'y ess.-act. plus NS *n dur., i.e., keep pouring till full]

Sah: KANURI wá "to fill" (H)
FOR dàwà "rainwater" | [FOR d- n. sing. pref. plus NS *a- n. deriv. pref. plus stem]

FOR dèwá "dung (of cow)"

FOR kèwá "blood" | [probably *diawa, FOR d- n. sing. pref. plus NS *a- n. deriv. pref. plus stem]

SONGAY wá "to defecate" | [*ki-awa, FOR *k(i)- pl. pref. plus NS *a- n.deriv. pref. plus stem]

SONGAY wà "milk; milky sap of plant"

SONGAY wáaỳ "to milk" | [stem plus NS *-Vh n. deriv. suff. (this explains tone lowering)]

Maban: MABA waː- "to pour" (L) | [Songay n. plus NS *'y ess.-act. as denom.]
  | [stem plus NS *-a dispunc. may account for V length here]

Astab: Nub: DONGOLAWI wad "to draw blood from" | [stem plus NS *t̪ caus.]

Astab: Nub: DILING oti "water; wet" | [stem plus NS *tʰ n./adj. suff.]
Kir-Abb: GAAM wāā "water; watery place" | [stem plus NS *-Vh n. deriv. suff.]
Kir-Abb: NYIMANG kwua "valley" | [NS *kʰ n. pref. plus stem; semantics: "stream" > "valley" (place where stream runs)]

Kir-Abb: proto-Daju *wad- "to swim" | [stem plus NS *tʰ cont.]
Kir-Abb: Daju: NYALA waɲ- "to swim" | [stem plus NS *ɲ extend.]
Kir-Abb: Nil: PENil *-wo "to bleed, leak"
Kir-Abb: Nil: ENil: PTung'a *-kɔɔt- "blood" | [NS *kʰ n. pref. plus stem plus NSud *t̪ n. deriv. suff.]

Kir-Abb: ENil: BARI won- "to leak, ooze (flow gently)" | [stem plus NS *n dur.]

Kir-Abb: SNil: DATOGA *way "to flow" | [stem plus NS *'y ess.-act.]
Kir-Abb: Nil: SNil: Kalenjin *ɪwɔt "rain season" | [*i- v. class pref. plus v. stem of IK wat- "to rain," which see; possible Rub loan?]

Rub: SOO ot, PL. otek "small stream" | [stem plus NS *tʰ n. suff.]
Rub: IK ot- "to pour" | [stem plus NS *tʰ cont.]
Rub: IK wat- "to rain" | [stem plus NS *tʰ cont.; identical but later formation than preceding v.]

Rub: IK ɔtá(ɛ) "long rain season" | [previous IK v. entry plus NS *-ah n. deriv. suff.]

Rub: IK waat- "to soak (tr.)" | [stem plus NS *-a dispunc. (needed to explain long V) plus *tʰ cont.]

Rub: IK otet- "to get an abortion" | [stem plus NSud *t̪ caus. (IK -et-)]
Rub: IK ɔz "anus" | [stem plus NS *'y n. suff.

Sahelian semantic innovation: A shift of application of the verb from transitive to intransitive senses can be seen to underlie the various Sahelian usages of the unextended root. Possible Sahelian morphological innovation: Root plus *-a dispunctive explains the Maba and second Ik verbs.

1372. *wa / *we   "to move (intr.)"/"to come"

Koman: Gumujz *we "to come"
CSud: PCS *wa "to move about" | [2nd stem]
KUNAMA wa- "to leave"
KUNAMA u- "to enter"
KUNAMA wa "entrance" | [2nd stem]
  | [KUNAMA u- "to enter" plus required n.-final *-a]
FOR weiŋ- "to come back" | [2nd stem plus NS *ŋ punc.]
Astab: NARA wɔː "to come" (B) | [2nd stem]

Kir-Abb: GAAM wəi- "to come out, go, move" [stem plus NS *-i itive]

Kir-Abb: proto-Daju *wed- "to go" [proposed *weitʰ-, stem plus NS *-i itive plus NS *tʰ cont.]

Kir-Abb: proto-Daju *wun- "to come" [stem plus NS *n dur.]

Kir-Abb: PNil *wat "to start out" (WNil: OCOLO wat; ENil: TESO -wɔtɔkın "to depart, advance") [stem plus NS *tʰ cont.; Teso reflex adds ENil benef.]

Kir-Abb: Nil: WNil: OCOLO wäʈ "to reach, arrive" [*waʈ, 1st stem plus probably *-uh ven. (to explain V length) plus NS *ʈ caus. > tr., i.e., reach a place]

Kir-Abb: Nil: ENil: MAASAI wou "come!" [stem plus NS *-uh ven.]

Kir-Abb: Nil: SNil: Kalenjin *weːt "to go" [proposed *weitʰ, 2nd stem plus NS *-i itive (to explain V length) plus NS *tʰ cont.]

Kir-Abb: Nil: SNil: NANDI u, ui "to move, go" [2nd stem]

Kir-Abbaian morphological innovation: The addition of *-i itive to the 2nd form of the root, with a shift of meaning to "to come out, go," can be seen in the Gaam, proto-Daju and Kalenjin reflexes of the root. Kir morphological innovation: addition of *tʰ continuative extension to the Kir-Abbaian extended shape of the root (*weitʰ "to go," seen in Daju and Kalenjin reflexes). The original meaning of the simple shape *we seems likely, from the Gumuz, Kunama, and Maasai reflexes, to have been "come." For other CV verbs of motion with variant V, see roots 708, 1029, 1289, 1303, and 1472.

1373. *wa "to grow"

CSud: MM: LUGBARA wǟ "to be fully developed (of fruits)"

KUNAMA wamia "complete, whole, all" [stem plus NS *m n. or adj. affix plus NS *'y n./adj. suff.]

Kir-Abb: NYIMANG kwɔ́ "leaf" [NS *kʰ n. pref. plus stem; semantics: derivation of words for "leaf" or "grass" from verbs for "to grow" is a common semantic pattern (e.g., in English "grass"]

Kir-Abb: proto-Daju *wei "many" [stem plus NS *'y n./adj. suff.]

Kir-Abb: Nil: ENil: BARI wa-jʊ "to widen (gaps, openings)"

Kir-Abb: Nil: PSNil *o(ː) "big" [stem plus NS *-Vh n./adj. suff. as in SOO reflex, or < *(w)o < *we < *wa'y, stem plus NS *'y n./adj. suff.]

Rub: SOO wa' "big" [stem plus NS *-Vh n./adj. suff.]

Rub: SOO wam, PL. wemuk "elder" [stem plus NS *m n. suff.]

Rub: SOO iwat- "to grow (of people)" [*i- v. class pref. plus stem plus NS *tʰ cont.]

Rub: IK kɔw, PL. kɔwaak "old" [NS *kʰ n. pref. plus stem plus NS *w n./adj. suff.]

Rub: IK ku (kua-) "grass" [NS *kʰ n. pref. plus stem; same root and semantics as in Nyimang entry above]

Eastern Sahelian semantic cum morphological innovation: new noun root, *kʰwa "leaf," consisting of Nilo-Saharan *kʰ- noun prefix plus stem. This root may have coexisted as a synonym in early Eastern Sahelian along with root 1496 for "leaf." Alternatively it may have been a suppletive plural or collective term for "foliage," since it took up the meaning "grass" in Rub.

1374. *wah "me" (first person singular secondary pronoun)
[dem. root 1369 plus NS *ah first person pron. (root 1583)]

Koman: Gumuz *-wa IN *akwa "we"

Koman: GULE wɔ "I" [see root 964 for derivation]

FOR dwiŋ, PL. kwiŋ "my" [d-w-iŋ, Pl. k-w-iŋ, For sing./pl. in *d-/ *k- plus stem (-w-) plus NS and For gen. in *ŋ: this pattern is general in For poss. pron.; see also roots 1403, 1493, 1583, and 1588 for proposed derivations of other For poss. pron. (interpretation differs from that of von Funck 1986)]

Astab: NARA o "my"

Astab: Taman *wa "I"

Astab: Taman *wai "we" [Taman *wa "I" plus NS pl. *-ih]

Astab: Taman *waŋ "we" (MERARIT waŋ; TAMA oŋun "our") [Taman *wa "I" plus NS pl. in *ŋ; TAMA "our": *waŋ plus gen. marker in *n; for parallel formation, see TAMA "their" in root 1369]

Astab: Nub: NOBIIN ùu "we" [< *we < *waih, root seen also in Taman "we" above]

Astab: Nub: KADARU -o << 1st person pl. subj. marker >> [structure as in NOBIIN indep. pron. for "we" preceding]

Kir-Abb: proto-Daju *kon- "we (incl.)" [< *k-w-an, element *kʰ plus stem plus NS *ana "we (incl.)" (root 279); *kʰ itself probably derives from Sahelian *kʰ 1st person pl. subj. marker of v., creating pron. triply composed of 1st person elements; *wan without *kʰ element occurs also in Nil., which see below]

Kir-Abb: proto-Daju *-waš- "we (excl.)" [< *-w-aš, stem plus KA *aθa "we (excl.)" (see root 1122); note parallel structure of Daju "we (incl.)"]

Kir-Abb: PNil *wan "we" (PWNil *wan; ENil: Ateker *wɔn) [structure as in Daju "we (incl.)" above]

The attestations of this root do not overtly require final *h; it is presumed here because it accounts for the pronoun derivation in a manner paralleled commonly elsewhere in Nilo-Saharan, namely, by combining a demonstrative or pronomial stem with an older Nilo-Saharan person marking element. It is proposed not to have originated as a nominative form because of its frequent possessive application and because other roots clearly took the independent nominative position in early Nilo-Saharan history (see roots 434, 1584, and 1586). Western Astaboran innovation: The derivation of a first person plural pronoun, *wa-i, by addition of the old Nilo-Saharan *-ih plural suffix, is attested clearly in both the Taman and Nubian subgroups of Astaboran. A second pronoun for "we," *waŋ, can be reconstructed for Taman alone. Very possibly, one of the two meant "we (incl.)" and the other "we (excl.)," but if so, which one had which meaning is not evident.

1375. *wáːl "to return"

CSud: WCSud: AJA áwá "to return"

KUNAMA wala- "to return"

Sah: KANURI wál "to return"

Kir-Abb: Nil: ENil: MAASAI -wál "to answer"

Kir-Abb: Nil: SNil: Centr.Kal. [*wɔl "to answer": LOAN, probably from Maa (expected *waːl)] [CSud *V- pref. plus stem]

Rub: IK [iwálíl- "to divert from the main direction when going somewhere": LOAN (expected *wat-)]

[*i- v. class pref. plus stem plus probably *1 iter..; semantics: return > turn away]

The Maasai verb (and the Kalenjin borrowing of it) must be included here for two reasons: (1) the derivation of the meaning "to answer" from the meaning "to return" is a recurrent African semantic pattern, and (2) the Maasai form has regular tonal correspondence with this set, but lacks such correspondence with the otherwise plausible alternative source root 1447.

1376. *wànt OR *wànt̪ "side of the body"

FOR nundaŋ, PL. kundaŋa "side (of the body)" (B)
FOR nòndòŋ "kidney"

[stem plus NS *ŋ n. suff.]
[FOR n- sing. pref. plus stem plus probably *-oŋ sing. suff. instead of NS *ŋ n. suff. seen in preceding For entry, hence differing V outcome]

SONGAY wàndè "part of the body between the ribs and hip"
Rub: SOO watan, PL. waten "ribs, side"

1377. *wàɲ OR *wãɲ "female"

FOR dwanya, PL. kwanyaŋa "woman"
SONGAY wèy "female"
Kir-Abb: Nil: WNil: OCOLO wanyo "father's sister"
Kir-Abb: Nil: SNil: Centr.Kal. *kwaɲ "woman"

[NS *kʰ n. pref. plus stem]

1378. *wánt̪ "woman" [root 1377 plus NS *t̪'/t̪ n. suff.]

SONGAY wàndè "wife"

[stem plus NS *-eh n. deriv. suff. accounts for tone lowering]

Kir-Abb: GAAM ɔ́ɔd, PL. ɔ̀ɔ̀tg "woman"

1379. *wãŋ "eye" [*w-aŋ, root 1404, *wɛː, with *-aŋ sing. suff. substituted for stem V]

CSud: PCS *ŋɔ "eye" (WCS *ŋɔ "to look")
KUNAMA kunda "forehead"

[WCS: v. by backformation < n.]
[NS *kʰ n. pref. plus stem plus NSud *t̪ n. suff. (*kʰo-oŋ-d- > *kʰ-uŋ-d-)]

FOR núɲí, PL. kúɲí "eye"
Maban: MABA anoŋok, PL. anoŋosi "eyelash"

[*an- allomorph of NS *a- n. deriv. pref. plus stem]

Astab: NARA no "eye"
Kir-Abb: Nyimang *aŋ- "eye" (NYIMANG aŋè, DINIK aŋwá)
Kir-Abb: TEMEIN ɲiɲiŋat̪ "eye"

[Temein *n- sing. and *t̪ sing. affixes added to *-ɲin-, C remnant (-ŋ-) of stem plus pl. in *n]

Kir-Abb: West Daju *oŋon- "eye"
Kir-Abb: PNil *waŋ, PL. *waɲ "eye" (PWNil *waŋ, PL. *ɲin; PENil *-kɔŋ-, PL. *kɔŋ-; PSNil *kɔːŋ, PL. *kɔːɲ)

[stem plus NS *n n. suff.]
[WNil pl.: *waŋın > *ɔɲın, pl. stem plus WNil pl. marker *-in, with regular PWNil *V > Ø /#_CVC#; ENil and SNil: NS *kʰ n. pref. plus sing. and pl. stems]

1380. *waŋw "termite"

CSud: PCS *ŋwa, *ɔŋwa "termite"
KUNAMA kuŋni, koɲɲi "queen termite"

FOR dwaŋ "termite"

[2nd shape: CSud *V- pref. plus stem]
[NS *kʰ n. pref. plus stem plus NS *n n. suff.]
[FOR d- n. sing. pref. plus stem]

Maban: MABA anoŋok, PL. anoŋo "termite"
Kir-Abb: Nil: PENil *-kɔŋ- "termite"

[*an- allomorph of NS *a- n. deriv. pref. plus stem]
[NS *kʰ n. pref. plus stem; possible loan from MM (CSud), since some MM reflexes also add *kʰ pref.]

1381. *wãpʰ "to thrust aside"

Koman: UDUK wùpʰ àpʰó' "to attack (one person), to fall upon someone" (ápʰó' "on top")
KUNAMA ofai- "to step aside, get out of way"
Sah: KANURI wóp "to flip over, throw down to floor, defeat, surprise"
SONGAY wòfè "to pull suddenly"

[stem us NS *'y ess.-act. as intr.]

[stem plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)]

Kir-Abb: Nil: ENil: MAASAI -wúáp "to snatch"

Sahelian semantic innovation: shift in the direction of action from away from the speaker to toward the speaker.

1382. *wáːpʰ OR *wãːpʰ "to wipe"

Koman: UDUK wùpʰ "to brush (ceremonially)"
CSud: PCS *wa "to rub off"
KUNAMA ubi- "to push, shove"

[influence of Kunama reflex of root 1381 would explain meaning shift]

Astab: Taman: TAMA wɔːf-, uːf- "to wipe, rub"

1383. *wár "to rise, go up"

KUNAMA ori- "to go up"
Sah: KANURI wár "to recover from long illness"
Sah: KANURI wárás "ideophone of being awake throughout the night"
FOR *wair- "to spread out"
FOR dóór "flower"

[stem plus NS *s prog.]

[stem with NS *-i itive]
[FOR d- sing. pref. plus *awar, NS *a- n. deriv. pref. plus stem]

SONGAY wárgá "to be big, thick, fat; to grow bigger"
Astab: Nub: DONGOLAWI waris "to stretch, extend"
Kir-Abb: NYIMANG wɔ̃rɔ̀, DINIK ɔ́r "head"
Kir-Abb: Nil: ENil: BARI warog-gu "to climb tree without branches"
Kir-Abb: Nil: PSNil [*kɔːr "long": either LOAN (expected *kɔːR) or chance resemblance]
Rub: SOO ora' to scatter"

[stem plus NS *k adj. suff.; v. < presumed earlier adj.]
[stem plus NS *-i itive plus NS *s prog.]
[semantics: top part of body]
[stem plus NS *kʰ iter.]
[if not chance resemblance, then NS *kʰ n./adj. pref. plus stem]
[stem plus NS *-a dispunc. (> SOO -a' by analogy to SOO -u' ven., < NS *-uh)]

Rub: IK kwar "mountain"

[NS *kʰ n. pref. plus stem (with regular tone lowering?)]

Sahelian semantic innovation: shift in application of the simple verb from rising, as in Kunama and Kanuri (rising from sickbed), to expanding and spreading.

1384. *wàr "to take"

Koman: UDUK wàr "to deprive of after first allowing to have"

CSud: PCS *wa "to take"
KUNAMA or- "to take away; to collect"
Sah: KANURI wàr "to seize, snatch"
Astab: Taman: TAMA wariŋ- "to pick (fruit)"   [stem plus NS *ŋ punc.]
Astab: Taman: TAMA wars- "to have"   [stem plus NS *s prog. > dur.]
Kir-Abb: GAAM war- "to take, bring, carry"
Kir-Abb: NYIMANG kwɔrɔŋ "harvest"   [NS *kʰ n. pref. plus stem plus NS *ŋ n. suff.; semantics: "take" > "pick" (as also in 1st Tama reflex)]

Kir-Abb: Daju: NYALA war "to marry"   [semantics: common African pattern, "take" > "marry" (take a wife)]

Kir-Abb: Nil: ENil: MAASAI [a-wa "to take": LOAN from CSud (C# > Ø)]

1385. *wár OR *wád "to spring, bound (away)"
Koman: UDUK àwàríny "rabbit"   [NS *a- n. deriv. pref. plus stem plus NS *ɲ n. suff.]

CSud: PCS *wa "to run off"
FOR waar "quickly"   [V > V: /#C_r# as For nomin. derivation: see also root 600]

Astab: PNub *war "to jump, hop" (NOBIIN wár-)

1386. *wáːr "to burn brightly"
Koman: UDUK àwár "lightning"   [NS *a- n. deriv. pref. plus stem]
KUNAMA wara- "to beam, shine, sparkle"
Sah: KANURI wár "to burn (tr.)"
Astab: NARA wor "to burn (tr.)"
Astab: Nub: DILING ori "white"   [stem plus NS *-ih or *'y n./adj. suff.]
Astab: Nub: DILING orgad, PL. warge "cooked"   [stem plus NS *k adj. suff.]
Kir-Abb: TEMEIN waaraŋ "hot"   [stem plus NS *ŋ n./adj. suff.]
Kir-Abb: proto-Daju *oRoŋ "sun"   [stem plus NS *ŋ n. suff.]
Kir-Abb: Nil: ENil: BARI war-an "to begin to dawn"   [stem plus Bari incep. (NS *n dur.)]

Saharo-Sahelian semantic innovation: The development of a coexisting transitive use of the verb with its focus on the burning or heating done by a fire rather than on its production of light is apparent in the Kanuri and Nara verbs and the Nyimang adjective and the second Diling adjective. The older sense of brightness is retained in the first Diling adjective, the Daju noun, and the Bari verb.

1387. *wàs "to grow large"
Koman: UDUK wàs "to tassel, of corn"
KUNAMA ossako- "to increase, augment"   [stem plus NS *kʰ iter. > dur.]
Sah: KANURI wásàm "yawning; to yawn"   [stem plus NS *m n. suff.; v. < n.]
FOR wassiye "wide"   [stem plus NS *'y adj. suff., with usual FOR gemin. of medial C of adj.]
SONGAY wásà "to be wide"   [stem plus *-Vh n./adj. deriv. suff., with v. < presumed earlier adj.]
Rub: IK was-úk'ót- "to stand"   [semantics: grow > rise > stand]

Saharo-Sahelian semantic innovation: A narrowing of the sense of the root to a particular kind of enlargement, widening, is explicit in the Songay and For meanings and implied in the Kanuri reflex (to yawn is to widen the mouth). The Ik verb shows a quite different and counter-indicative direction of meaning shift, however. One possibility is that Ik borrowed its form from a non-Saharo-Sahelian language.

1388. *wáːṣ "to bubble"
Koman: UDUK àwùš "foam, bubble"
Koman: UDUK àwùšá' "frothy, bubbly"   [NS *a- n. deriv. pref. plus stem] [UDUK n. plus NS *-ah n./adj. deriv. suff.]

SONGAY wáasú "bouillir en faisant du bruit"
Astab: Nub: DONGOLAWI [waːs "to boil (intr.)": LOAN from language in which NS *ṣ > s]   [stem plus NS *-uh ven.]

1389. *wát "close friend, comrade"
KUNAMA koda "friend, comrade"   [NS *kʰ n. pref. plus stem]
SONGAY wáddè "comrade of same age"   [probable *ward-, stem plus NSud *ṭ n. suff.]

Kir-Abb: Nil: WNil: OCOLO wat "friend, comrade"

1390. *wáyéh OR *wá'yéh "ten"
FOR weye "ten"
SONGAY wéy "ten"

1391. *waːy "to give off light"
CSud: PCS *wɛ "to be alight"
SONGAY wéetè "morning"   [stem plus NS *tʰ n. suff.]
Kir-Abb: Nil: ENil: BARI wɛ-'ya "to make white"
Kir-Abb: Nil: ENil: BARI lɔkwe "white"   [Bari *l- adj. pref. (NS *l n./adj. suff.) plus NS *kʰ n./adj. pref. plus stem]
Kir-Abb: Nil: SNil: Elgon Kal. *waːc "to flash" (of lightning)
Rub: IK wídzeekw, PL. wídzitín "afternoon"   [stem plus NS *y n. suff. (> PRub *j > IK dz) plus Rub sing./pl. suffixes]

1392. *wàːyn "fire" [root 1391 plus NS *n n. suff.]
Sah: DAZA, TEDA wuni "fire"
FOR dèònàŋ, PL. kèènà "firestone"   [*-ewon-, regressive V height assim. of NS *a- n. deriv. pref. plus stem]
SONGAY wénòw "sun"   [stem plus NS *w n. suff.]
Maban: MABA aun "ash"   [NS *a- n. deriv. pref. plus stem]
Astab: NARA wiːni "star" (B)
Astab: Nub: NOBIIN ùnáttì "moon"   [< *unarti, stem plus NS *r and *tʰ n suff.]
Astab: Nub: NOBIIN winji "star"   [stem plus NS *s n. suff. (< *winz- < *wins-, by voicing assim.)]
Astab: Nub: DONGOLAWI uːn, unatt- "moon"   [2nd shape: as in Nobiin; probable loan < Nobiin]
Astab: Nub: DONGOLAWI wiss- "star"   [structure as in Nobiin reflex; probable loan < Nobiin]

Kir-Abb: Nil: WNil: OCOLO wɛni "afternoon"   [stem plus NS *-ah n. deriv. suff.]
Rub: SOO wena' "lightning"
Rub: SOO wèná' "late afternoon"   [stem plus NS *-ah n. deriv. suff.]

The basic meaning of this root would seem to have been "fire." That meaning is directly present in the Tibu reflex, and it is the implied prior meaning in the derived roots in For and Maba, both of which attach the Nilo-Saharan attributive prefix *a- to the simple root (i.e., firestones and ashes are attributes of or associated with the fire). The Eastern Sahelian languages share a semantic innovation: the shift of the primary focus of the root from "fire" to "light" in the sky." (The Dongolawi irregular retention of a front vowel in its word for "star" suggests it to be a loanword, probably

from Old Nubian.) The Songay reflex, though similarly referring to a heavenly body, has distinct derivational suffixation suggesting it to be a separate innovation. The proto-Nilo-Saharan root for "fire" appears in root 1421.

1393. *wa:yş   "to light, ignite"   [root 1391 plus NS *ş caus.]

Sah: KANURI wàs "to ignite, light" (H)
Sah: KANURI kàùsù "sun-heat"   [NS *kʰ n. pref. plus stem plus NS *-Vh n. suff.]

Maban: MABA wosik "fire"   [k- is Maba n. sing. marker]
Astab: NARA kos "sun"   [NS *kʰ n. pref. plus stem]
Astab: Taman: MERARIT usugu "fire"   [stem plus NS *kʰ pl. suff. (mass pl.)]
Astab: Nub: MIDOB ussi "fire"

PNS *ş was chosen here because it makes derivational sense; but *s or *θ are also possible. Sahelian innovation: derivation of a noun for "fire" from the verb. The Maba and Midob shapes of the noun suggest a reconstructed shape *wa:yṣih, stem plus the Nilo-Saharan *-ih deverbative instrument/agent suffix. The Merarit reflex may have had the same structure but then lost it by vowel assimilation (*usigu > *usugu) or by morphological replacement.

1394. *wêl   "to speak loudly"

CSud: PCS *we "to speak loudly"
Sah: KANURI wúlwúlî "ululation"   [redup. stem as iter. plus NS *-ih n. deriv. suff.]

FOR koola "roar of lion"   [NS *kʰ n. pref. plus stem plus NS *-ah n. suff.]

Maban: MABA -ol- "to weep, cry"
Astab: Taman: TAMA uluw- "to shout, yell"
Kir-Abb: GAAM àə̀l "carnivore; large hyena"   [semantics: roarer or howler, as attested in For reflex]

1395. wē:l   "to shine, burn"

CSud: MM: LUGBARA àwí "to scorch, singe, burn"   [CSud *V- pref. (a- tr.) plus stem]

Sah: KANURI wùlák "to flash" (wùlàk "lightning")   [stem plus NS *k intens.; n. < v. by tone shift]

Sah: KANURI wùlwùlá "shine"   [redup. stem as iter. plus NS *-ah n. suff.]

FOR weel "summer"
FOR dule "sun, day" (B)   [FOR d- n. sing. marker plus stem]
FOR ulmol- "to flash (of lightning)"   [stem plus NS *m iter. concis. plus NS *l iter.]

SONGAY óolé "to be yellow"
SONGAY óoló "yellow"   [stem plus NS *-Vh n./adj. deriv. suff.]
Maban: MABA kuldak "smoke"   [NS *kʰ n. pref. plus stem plus NSud *ṭ n. deriv. suff. (-k is Maba n. sing.)]

Astab: Taman: TAMA wellaŋa "morning"   [stem plus NS *ŋ n. suff.]
Astab: Nub: DONGOLAWI ull-, wellɛ: "to kindle, set fire"   [2nd shape: stem plus NS *'y ess.-act.]
Astab: Nub: DILING ul "day"
Kir-Abb: GAAM ûl- "to warm onself"
Kir-Abb: GAAM awɛlg "sky"   [NS *a- n. deriv. pref. plus stem plus GAAM -g pl. (NS *kʰ)]

Kir-Abb: GAAM wiliin "scintillating"   [stem plus NS *'y ess.-act. plus NS *n modif. suff.]

Kir-Abb: NYIMANG kwuliḍi "charcoal"   [NS *kʰ n. pref. plus stem plus NSud *ṭ n. suff.]

Kir-Abb: Nil: WNil: JYANG akɔl "sun"   [NS *a- n. deriv. pref. plus NS *kʰ n. pref. plus stem]

Kir-Abb: Nil: PENil *-koloŋ- "sun"   [NS *kʰ n. pref. plus stem plus NS *ŋ n. suff.]

Rub: IK [wel "morning hours": LOAN (expected *wel)]   [n. < v. by tonal shift?]

Sahelian innovation: derivation of a noun for "daylight" (attested in the For, Tama, Diling, Gaam, and borrowed Ik reflexes with respective meanings "sun, day," "morning," "day," "sky," and "morning hours"). Southwestern Surmic *kar- "sun" and proto-Daju *oRoŋ "sun" do not belong to this cognate set, nor do they show regular sound correspondences with each other. This Surmic stem, however, does bear the expected consonant and vowel outcomes of root 1465, while the Daju word for same kind of reasons can be attributed to root 1386 (see Table 2.10 for the expected regular correspondences).

1396. *wém   "you (pl.)"

Koman: Sn Koman *wém "you (pl.)" (UDUK úm, KOMO um, KWAMA ɔm)

Koman: KOMO -em << 2nd person pl. subj. marker of v. >>   [loss of *w following a preceding word-final C, as morphophonemic extension of regular Komo loss of *w in Cw sequences (*CwV > CV)]

Koman: GUMUZ ama "you (sing.)"   [< *a-om-a, Gumuz *a- pron.-initial element plus stem (*wem > *-om-) plus Gumuz *-a nom.-final suff. (see Chap. 8)]

CSud: WCSud: KRESH mu "you (sing.)"
KUNAMA m-, -m(u) << 2nd person pl. subj. markers of v. >>
Sah: Bodolean *m << 2nd person sing. subj. marker of v. >>

Cyffer 1981 relates Bodolean *m to the proto-Saharan *b second person plural marker, but the comparative evidence cited here indicates that these two are distinct (see root 51 for Saharan *b).

1397. *wēpʰ   "to lack strength, be weak"

Koman: UDUK ūpʰ "women" (suppl. pl.)
Koman: Sn Koman *hapʰ "she" (KOMO hap; etc.)   [for derivation, see root 1588]
Koman: KOMO -p << gender marker in feminine 3rd person pronouns >>
CSud: PCS *we‧ "to wear out, weaken"
SONGAY wófè "to be weak, lack strength"

1398. *wēnt / *wīnt   "to go round"/"to revolve"

SONGAY wìndì "to revolve around (something)"   [2nd stem]
Astab: Nub: DONGOLAWI wɛd "to spin (cotton)"   [1st stem]
Astab: Nub: DONGOLAWI widɛ "to turn, turn around"   [2nd stem plus NS *'y ess.-act.]
Kir-Abb: Nil: PWNil *wɛn/*win "to go around" (def./indef.)

For other examples of this stem-vowel alternation and its semantic effect, see note to root 126.

1399. *wèr "to increase in size or amount"

| Koman: UDUK wùrùpʰáwùrùpʰ "thick, of grass, tree" | [adj. by redup. stem plus NS *p extend.] |

CSud: PCS *we "to increase (quantity, number)"

Sah: KANURI kùrà "long, deep"	[NS *kʰ n./adj. pref. plus stem plus NS *-ah n./adj. deriv. suff.]
FOR kura "long, deep"	[structure as in Kanuri reflex]
Kir-Abb: NYIMANG ʈówurù "long"	[NSud *ʈ n./adj. suff. (in Nyimang > pref.) plus stem plus NS *-Vh n./adj. suff.]
Kir-Abb: NYIMANG kwor "flower"	[NS *kʰ n. pref. plus stem; semantics: increase > grow (plant, bud, etc.)]
Kir-Abb: NYIMANG kwɛrɛn "all"	[NS *kʰ n./adj. pref. plus stem plus NS *n modif. suff.]
Kir-Abb: Surmic: S.Surmic: KWEGU uru "big"	[stem plus NS *-Vh n./adj. deriv. suff.]

Kir-Abb: Nil: WNil: JYANG wor "to exceed"

Saharo-Sahelian morphological cum semantic innovation: derivation of a root probably for "long" by addition of the Nilo-Saharan *kʰ prefix to the stem and probably also the *-ah suffix. The Nyimang adjective is a separate derivation, distinct from Saharo-Sahelian *kʰ-wer-ah > *kʰu:rah "long."

1400. *wèr OR *wèd "mud"

CSud: MM [*wɔr "dung": LOAN from ENil, probably specifically from Bari]

| KUNAMA orega "muddy, dirty" (orego- "to be muddy, dirty") | [stem plus NS *k adj. suff.; v. < adj.] |

FOR òòr "camel dung"

| SONGAY wìrì "dung" | [stem plus NS *-ih pl. or *-ih n. suff.] |
| Maban: MABA ura "clay" | [stem plus NS *-ah n. suff. or *-a pl.] |

Kir-Abb: Nil: PWNil *wer "dung"

| Kir-Abb: Nil: PENil *-wɔr "dung" | [possible loanword from WNil] |

Possible Sahelian semantic shift to "dung"; whether the Maba term supports or counterindicates this proposal is unclear. The gloss "clay" may well refer to the kind of blend of mud and dung which has common building and other uses in these regions, and so support it.

1401. *wéθ "to spill onto, wet down"

Koman: UDUK wús "to wash (clothes)"

| FOR wese "wet" | [stem plus NS *-Vh n./adj. deriv. suff.] |
| SONGAY wésí "to drain, scoop out (liquid)" | [stem plus NS *-i itive] |

Astab: Nub: DONGOLAWI uss- "to defecate"

| Kir-Abb: proto-Daju *ošo "year; rainy season" | [stem plus NS *-Vh n. deriv. suff.?] |

Kir-Abb: Nil: WNil: OCOLO wɛʈ "to paint, smear on, cover with grease"

| Rub: SOO wéθit- "to fill" | [stem plus NS *tʰ cont.] |

1402. *wèʈ OR *wèʈʰ "to remove, dispose of"

Koman: UDUK wòtʰ "to deliver (from), drive off birds, save from locusts, scare away, help, save"

CSud: PCS *we "to skin, peel, remove covering"

Maban: MABA wùd- "to pluck"

| Maban: MABA wúdà-, wùdùŋà- "to draw out" | [stem plus NS *-a dispunc.; stem plus MABA -ŋ- ext. plus NS *-a dispunc.] |

Astab: Nub: KADARU ɔʈ- "to kill"

Kir-Abb: Nil: WNil: OCOLO wɔʈ "to disembowel, take insides out"

Kir-Abb: Nil: ENil: TESO -wut "to castrate"

1403. *wɛ́ "you (pl.)"

Koman: GULE auwa "you (pl.)"	[*a-wɛ-a, stem in regular Gumuz format *a-C(V)-a]
CSud: MANGBETU -u IN -(ndr)u "your (sing.)"	[(*-ndr- "person" root plus) stem; see also Greenberg 1963: 111]
Sah: TUBU -u, PL. -tu << imperative markers of v. >>	
FOR dwieŋ, PL. kwieŋ "your (pl.)"	[For number pref. (d-/k-) plus stem plus FOR -ŋ gen. (NS *ŋ): see root 1374 for further discussion of sources of For poss. pron.]
FOR dwiele "to/from you (pl.)"	[structure as in For 2nd person pl. poss. pron., but with loc. -le in place of -ŋ gen.]
SONGAY óo, ór "you (pl.)"	[2nd form: *war, stem plus *r n. suff. (as also in Nubian reflex)]
Astab: Taman *-o << imperative marker of v. >>	[probably *w-ɔ, stem with gen. in *ɔ: substituted for stem V; see root 279 for parallel Tama structure in 2nd person sing. poss. pron.]
Astab: Taman: TAMA o "your (pl.)"	[structure as in SONGAY ór (< *wɛr)]
Astab: PNub *wir "you (pl.)"	
Astab: Nub: DONGOLAWI -we << imperative pl. marker of v. >>	
Astab: Nub: DILING -u- IN hugi "your (sing.) father" (versus haga "his father")	[*-u- as infix in stem; haga "his father": stem with *-ɛ- as infix (NS *ɛ > PNub *a) < NS *ɛh 3rd person stem (root 1588)]
Astab: Nub: BIRKID udi "you (pl.)"	[stem plus root 767, *ti "(some)one"; see Birkid "you (sing.)" in root 1600 for parallel structure; for parallel 1st person formation in closely related Midob, see root 1583]
Astab: Nub: MIDOB -we << subj. marker of 2nd person pl. indicative >>	
Kir-Abb: W.Jebel *Vgu "you (pl.)"	[West Jebel *Vg- base of pl. pron. plus stem (see also roots 1493 and 1584 and root 408)]
Kir-Abb: W.Jebel *-u "your (pl., sing. possessed)"	
Kir-Abb: GAAM -ɔ̄ "you (sing. obj.)"	
Kir-Abb: GAAM ɔ̄ɔn "you (sing.)"	[*ogon, stem plus *g- pron. root (408), plus NS *n n suff. as in all Gaam indep. pron.]
Kir-Abb: GAAM -ūū << 2nd person sing. marker of v. >>	[West Jebel *Vgu "you (pl.)" converted to sing. bound usage]
Kir-Abb: GAAM -ʈV << imperative pl. suff. >>	[pl. in *ʈ or ʈʰ plus probably originally the stem reduced to uncertain V]
Kir-Abb: BERTHA ŋgo "you (sing.)"	[see root 486 for structure]
Kir-Abb: TEMEIN -ɔ, PL. -ɔʈɔ << imperative suffixes of v. >>	[pl. in *ʈ or *ʈʰ plus stem; > -a, PL. -aʈa /CaC_]

Kir-Abb: TEMEIN -ɔ, PL. -ɔt̪ɔ << imperative suffixes of v. >>

[pl. in *t̪ or *t̪ʰ plus stem; > -a, PL. -at̪a /CaC_]

Kir-Abb: TEMEIN -o "your (sing.)" IN konyun "your father"

[see Greenberg 1963: 110 for this evidence]

Kir-Abb: proto-Daju *we, *ɔŋgo "you (pl.)"

[2nd form: stem plus NS topic pron. stem *ŋg- (root 486)]

Kir-Abb: Surmic: SESurmic: ME'EN edu "you (pl.)"

[see root 235 for structure]

Kir-Abb: Surmic: SESurmic: ME'EN -u/-itu, -idu << sing. imperative marker (irregular)/pl. imperative marker >>

[formation as in Temein]

Kir-Abb: Surmic: DM *-uŋ "you (pl. obj.)"

[stem plus NS *-ŋ pl., seen also in parallel Murle -aŋ "us" (root 1583)]

Kir-Abb: Surmic: DM: DIDINGA -u- "your (sing.)" IN manyu "your father"

[see Greenberg 1963: 110 for this evidence]

Kir-Abb: PNil *-u "your (sing.)" (especially in kin terms)

Kir-Abb: PWNil *wɛ(n) "you (pl.)"

[stem (plus NS *n n. suff.; influenced by parallel PWNil *wan "we" (see root 1374)]

Kir-Abb: ENil: BARI dɔ "you (sing.)"

[see root 322 for structure]

Kir-Abb: Nil: SNil: Kalenjin *-ɔ- << 2nd person pl. subj. marker of v. >>

Rub: PRub *-(a)wɛ << imperative pl. marker of v. >> (SOO -u, -au; NYANG'I -o; IK -úò)

[(NS *a- nom. deriv. pref. plus) stem]

The use of this root in the reduced form *-u as a marker of second person in a variety of subordinate contexts appears to be quite old in the family. Nubian innovation: The Nubian reflexes imply a different vowel reconstruction *wé, possibly originating as a generalization of a regular morphophonemic alternant, *ɛ > *e /V[+high] in the associated verb. Saharo-Sahelian innovation: An imperative plural *-Tu, where T is an apparently redundant addition of the Saharo-Sahelian plural in *t̪ or *t̪ʰ and *-u is the reduced form of *wɛ, is implied in the Tubu (Saharan) and the Gaam, Temein, and Me'en (Kir-Abbaian subgroup of Eastern Sahelian) attestations. Interestingly, unmodified *wɛ appears to have been drafted into use in all these languages except Gaam as an alternative singular imperative marker. Whether this usage goes back to the Saharo-Sahelian stage, thus providing a third alternative imperative singular to early Nilo-Saharan *i (see root 1600) and Saharo-Sahelian *ái (see root 1601) in that role, or whether it was separately innovated in the Tubu subgroup of Saharan and in Kir-Abbaian, remains to be seen. The overall pattern of the imperatives perhaps best fits the latter solution.

1404. *wɛ̀ "eyes (suppl. pl. or dual)"

KUNAMA wa "eye"

Astab: PNub *koɲ "face" (NOBIIN kòɲ)

[*k-wɛ-ɲ, NS *kʰ n. pref. plus ESah *ɲ pl. suff. (as coll.?); for surface attestation of this structure, see Nyimang entry]

Kir-Abb: NYIMANG [kwɛɲ, kwɔɲ "face": probable LOAN from Nubian (Nubian morphology)]

[structure as in Nubian]

Rub: PRub *ekw "eye"

[NS *kʰ n. pref. plus stem plus NS *y n. suff., both added before #CV# > Rub *#VC# (earlier *kʰwɛːy > preRub *kwe > PRub *ekw)]

Eastern Sahelian innovation: addition of the Nilo-Saharan noun prefix *kʰ. The meaning "eyes (suppl. pl. or dual)" is reconstructed here for two reasons. In the first place, the Nilo-Saharan *kʰ prefix evident in the Nubian, Nyimang, and Rub forms began as and commonly functioned in Nilo-Saharan as a specifier (a "stage III article"). Its addition here would make sense as a particularizer changing "eyes" to "the eye." Second, the morphology of the early Nilo-Saharan root word

*waŋ "eye," derived from this root, can be explained also as a singularizing of *wɛ, thus paralleling the implication of the morphology of the Eastern Sahelian reflexes.

1405. *wéːn "to observe" [root 1404 plus NS *n dur. as denom.?]

KUNAMA osso- "to explain, teach"

[*onso-, stem plus NS *ş caus.]

SONGAY wáaní "to know"

[stem us NS *-i itive]

Astab: Nub: DONGOLAWI waːnd- "to appear, become visible, come in sight"

[stem plus NS *tʰ cont. (as intr.?)]

Kir-Abb: NYIMANG wɛn "to see"

Daju: East Daju *aun- "eye"

[*awɛn-, NS *a- n. deriv. pref. plus stem; Thelwall 1981 attributes this form to the separate NS root for "eye" retained in West Daju (root 1379 above)]

For a parallel derivation of a verb for seeing from a noun referring to the eyes, see the Kir-Abbaian reflexes of root 1486 below.

1406. *wèŋk "to disapprove of, deny"

Koman: UDUK wàkʰ "to condemn, criticize, find fault with"

CSud: ECS *wɛ "to not allow"

KUNAMA ongorna- "to lie, take in"

[stem plus NS *r n. suff. or iter. plus NS *n dur. (or n. suff. with v. < earlier n.]

SONGAY wénjè "to refuse, disobey"

[stem plus SONGAY -e (proposed NS *a dispunc. plus NS *-i itive) accounts for tone shift and V length]

1407. *wɛ́r "to be angry"

Koman: UDUK wár "to be angry"

KUNAMA uruda "argument"

FOR wur- "to refuse, deny"

Maban: MABA aurok, PL. aurtu "madman"

[stem plus NSud *t̪ n. suff.]

Kir-Abb: GAAM ɑ̄̈ɑ̄̈r "anger"

[NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: WNil: OCOLO wer "to be angry"

[derivation of n. < v. by tone shift]

Kir-Abb: Nil: ENil: BARI wɔr-an "to be angry"

[stem plus Bari incep.]

1408. *wéːr "to crack, tear, split (intr.)"

CSud: ECS *wɛ "to open"

FOR kóór "spear"

[NS *kʰ n. pref. plus stem]

SONGAY wáarú "to be cracked"

[stem plus NS *-uh ven. (or possibly allomorph of NS *w punc.?)]

Astab: PNub *orr- "to tear apart" (DONGOLAWI orr- "to tear (from edge); to get torn"; NOBIIN órr- "zerreissen")

[gemin. C as intens.?]

Kir-Abb: GAAM wèɛ̀r "crack"

[n. < v. by tone shift]

Kir-Abb: Nil: SNil: Kalenjin [*oːr "hole": LOAN from Rub (expected *wɛːʀ)]

Rub: Wn Rub *or "hole"

[probable *awɛr, NS *a- n. deriv. pref. plus stem]

1409. *wɛ́t̪ OR *wɛ́t̪ʰ OR *wɛ́ş "to strip, clear away"

CSud: ECS *wɛ "to sweep"

Sah: KANURI wás "to pound (in mortar) to remove
grains from ear"

Kir-Abb: Nil: WNil: OCOLO wɛc "to take off bark,
strip"

Rub: IK iwóts (iwótsí-) "mortar"   [*i- v. class pref. plus stem plus NS *-
ih n. suff.; semantics: see Kanuri
entry]

Saharo-Sahelian semantic innovation: A narrowing of the meaning of the root to a particular kind
of stripping, of husks or bark. Kanuri and Ik share a further specification of the verb to removing
grain from ears by pounding in a mortar and thus offer a potential counterindicator to the closer
relation of Nilotic and Rub in a common Eastern Sahelian grouping.

1410. *wɛ́y "to die"

Koman: Sn Koman *wɛy "to die" (UDUK wú,
KOMO wíi, OPO wee, wɛi)

Koman: GULE -wɔi "to die"

CSud: PCS *we "to die"

KUNAMA wi- "to be quiet, disappear"

SONGAY wí "to kill"

Maban: MABA -w- "to kill"

Rub: IK iw- "to beat"

Sahelian semantic innovation: shift of verb from intransitive sense ("to die" as in Koman and
Central Sudanic and underlying the Kunama meaning) to transitive sense ("to kill"). In Rub, the
verb has shifted further in meaning, to a transitive action "to beat," commonly semantically linked
in northeastern African languages with the sense "to kill."

1411. *wɛ̄yr "to dig out, dig up"

CSud: PCS *we "to dig hole"

Maban: MABA wúrá- "to dig"   [stem plus NS *-a dispunc.]

Astab: Nub: NOBIIN wêer- "to plow"

Kir-Abb: Nil: ENil: BARI wor-ju "to clean out
(remaining food)"

Rub: SOO oreθ "to weed"   [stem plus NS *s prog.]

Rub: IK wíran- "to try to get hold of food one is not   [stem plus NS *n dur.]
entitled to"

Semantic innovation grouping Astaboran and Kuliak as against Kir-Abbaian: A technical narrow-
ing of the verb to agricultural digging is seen in the Nobiin and Soo reflexes. The salience of this
shared meaning shift is undercut, however, by a shared alternative narrowing of the meaning, to
extracting every bit of food from something, found in the Bari and Ik reflexes.

1412. *wɛ̄:'y "to look at" [root 1404 plus NS *'y ess.-act. as denom.]

Saharan *we "to look at" (KANURI wú "to look at";
ZAGHAWA o- "to see")

FOR iw- "to learn"

Kir-Abb: GAAM wêìn- "to visit"   [stem plus NS *n dur.]

Kir-Abb: Nil: WNil: JYANG woi "to gaze"

Kir-Abb: Nil: ENil: BARI wowo-'yu "to investigate" [redup. stem as iter.]

Rub: SOO wit "to look, spy"   [stem plus NS *tʰ cont.]

Rub: IK ɪwízɪl- "to close one eye";   [1st v.: *i- v. class pref. plus stem plus
wízɪlɪm- "to look at someone with a half-   NS *l iter., with PRub *ɨ (< PNS
closed eye"   *l) > l /wizi_ (see also root 1440).
2nd v.: 1st v. plus NS *m iter.
conc.]

1413. *wikʰ OR *wik' "to listen"

CSud: PCS *wi "to understand" (BB "to hear")

Astab: Taman *ik- "to hear" (TAMA ik-, SUNGOR
ig-)

NOBIIN ukk- "to hear" and its associated noun /ukki/ "ear" might appear on the surface to be good
candidates for inclusion in this set. But the comparison loses its plausibility when other Nubian
forms are brought into the picture: /ukk-/, it seems, derives from a root *ulk-, seen in DONGO-
LAWI ulug, DILING ulje, etc., for "ear."

1414. *wikʰin OR *wik'in "ear" [root 1413 plus NS *n n. deriv. suff.]

Koman: GULE iigən "ear"

KUNAMA ukuna "ear"

1415. *wìr "to spill, flow out" [stem *wiy or *wi'y seen in root 1418 plus NS *r iter.?]

CSud: PCS *wi "to flow"

KUNAMA aura "rain"   [NS *a- n. deriv. pref. plus stem]

Sah: KANURI wùràl "to rinse out" (H)   [stem plus NS *-a dispunc. plus NS *l
iter.]

FOR ùrté "slimy"   [stem plus NS *tʰ n./adj. suff.; seman-
tics: "to flow" > "to be runny, wet,"
> "be slimy"]

SONGAY kúrí "blood"   [NS *kʰ n. pref. plus stem]

Astab: Nub: DONGOLAWI uru "great water, river"   [stem plus NS *-Vh n. deriv. suff.]

Astab: Nub: DONGOLAWI uru "to wash out"   [stem plus NS *w punc.]

Kir-Abb: DINIK uru "well"   [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: proto-Daju *wuR "to drink"

Rub: IK kwirid "slippery"   [NS *kʰ n. pref. plus stem plus NS *d
adj. suff.; semantics: as in For adj.]

1416. *wì:r "to turn (intr.)"

CSud: PCS *wi "to turn"

FOR ur- "to mix"

Astab: Taman: TAMA wir- "to turn"

Astab: Taman: TAMA aur "elbow"   [NS *a- n. deriv. pref. plus stem; se-
mantics: "turn" > "bend"]

Kir-Abb: NYIMANG wɛr ~ wir "fence"   [semantics: "turn" > "go round," hence
"fence" around something]

Kir-Abb: Nil: WNil: OCOLO wir "to turn, turn end
for end, turn around"

Kir-Abb: Nil: ENil: BARI [wiwi-jö "to spin, twist a [redup. stem as iter.]
thread": LOAN from CSud]

Kir-Abb: Nil: ENil: BARI [wid-dyö "to whirl, ro-   [stem plus NS *tʰ cont., added since
tate": LOAN from CSud]   borrowing < CSud]

Rub: IK wiriwir- "to move back and forth at some   [redup. stem as iter.]
distance, appear and disappear"

1417. *wís OR *wíʂ "to blow with the mouth"

SONGAY wísì "to whistle"

Astab: Taman: TAMA wi:s- "to whisper"   [V lengthening regular here, or record-
ing error?]

Astab: Taman: TAMA wi:siw- "to whistle"   [stem plus NS *w punc.]

Kir-Abb: proto-Daju *uus- "to blow"

Kir-Abb: Nil: SNil: Kalenjin [*us- "to blow": LOAN
(expected *wit OR *wic)]

1418. *wìy OR *wì'y   "to become or produce liquid"
[root in 1415 plus NS *'y ess.-act.?]

Koman: UDUK àwìy "soup, broth off the meat"	[NS *a- n. deriv. pref. plus stem]
CSud: ECS *wi "pus"	
FOR u- "to milk"	
FOR kwi "rain"	[NS *kʰ n. pref. plus stem]
FOR dùì "pus"	[FOR d- n. sing. marker plus stem]
Astab: Nub: NOBIIN áwwí "rain"	[NS *a- n. deriv. pref. plus stem]
Kir-Abb: GAAM kɔ̀i "rain; cloud"	[NS *kʰ n. pref. plus stem]
Kir-Abb: C.Jebel *kwɪc "rain" (AKA kwɪc, KELO kujə)	[< *kowiy-, NS *kʰ pref. plus stem, as in Gaam reflex]
Kir-Abb: West Daju *uŋge "water"	[*wi-ŋ-, stem plus NS *ŋ n. suff. plus NS *kʰ pl. marker (mass pl.)]

Possible Sudanic innovation: A noun for "pus," derived from this verb by uncertain affixation, is found in Central Sudanic and For. Sahelian semantic innovation: Five Eastern Sahelian attestations imply a specification of the verb to the appearing of water, probably in the form of rain. The Gaam, Central Jebel, and For nouns for "rain" may be a specific Sahelian noun innovation, by addition of the *kʰ noun prefix, or they may be separate, parallel For and Jebel derivations from the verb in its application to the falling of rain. The existence of an additional distinct Sahelian root for "rain," 1559, favors the latter explanation, as does the fact that the Jebel prefixation takes a specific form, *kʰo-, not evident on the surface in the For reflex.

1419. *wí:y OR *wí:'y   "to take loose, detach"

KUNAMA wia- "to separate the chaff from the
grain, especially sorghum"
Sah: KANURI wí, yí "to untie, loosen"
FOR uy- "to peel, skin, scrape, hoe clean"
SONGAY wí "to cut grass, harvest grain"

Kir-Abb: Nil: WNil: OCOLO wiy "to leave, leave
behind, abandon, let alone"

PROTO-NILO-SAHARAN STEM-INITIAL *'w

1420. *wá:l   "to grow"

Koman: UDUK wálàt̪'wàlàt̪' "exceedingly"	[stem plus NS *t̪' n./adj. suff., redup.]
CSud: PCS *'wa "old"	
Sah: KANURI wál "to become"	
FOR dólàŋ, PL. kólá "seed"	[stem plus NS *-ah n. deriv. suff.]
FOR kóól "pregnant"	[NS *kʰ n./adj. pref. plus stem]
Kir-Abb: NYIMANG *kwɔl "fat (n.)" (NYIMANG kwòl, DINIK kwɔ̀l)	[NS *kʰ n. pref. plus stem]
Kir-Abb: Nil: WNil: NAATH wʌl "fruit, produce of farm"	
Rub: IK [kɔw, PL. kɔwaak "old": LOAN from CSud]	[< *kɔwa, NS *kʰ n./adj. pref. added to borrowed stem]

Probable Sahelian innovation: The derived noun for "fruit, produce of the farm" can be argued to underlie the first For and the Naath entries (pre-proto-Nilotic *-V# was normally lost in old Western Nilotic roots).

1421. *'wā:nt'   "fire"

Koman: SW Koman *wat' "fire" (UDUK óɗ, KOMO wat'i; OPO wut'i)	
KUNAMA uda "burning wood"	
KUNAMA -dum- "to cook, prepare food"	[*udum-, stem plus NS *m iter. concis.]
Saharan *uto "heat of the day" (ZAGHAWA uto "sun"; KANURI kàúdò "heat of ground or of house after sunset")	[stem plus NS *w n. suff., added since NS *NC (C = [-voice]) > Saharan *C; Kanuri n. adds NS *kʰ n. pref.]
Sah: KANURI wát "to scorch, singe" (H)	
FOR ùtú "fire"	[stem plus NS *-Vh n. deriv. suff.]
FOR ut- "to grill, roast"	
SONGAY hàndù "moon"	[stem plus NS *-uh n. deriv. suff.]
Kir-Abb: Nil: SNil: NANDI wa:tan "to roast by slow fire"	[stem plus NS *n dur.]

The Koman noun maintains the root without addition of morphology that could derive it from a verb, such as the derivational suffixes found in the Saharan and For noun reflexes. A pattern of direct conversion of nouns to verbs occurs, however, in Kanuri (where it is commonly marked by tone shift) and Kunama (tone marking uncertain) and thus is a probable early feature of Nilo-Saharan grammar. It therefore can be argued here that the Koman reflex preserves the original use of this root as a noun for "fire," a usage probably directly maintained also, but with a shift in meaning from "fire" to the "stuff of the fire," in the Kunama noun for "burning wood." The unmediated conversion of this root into a verb can be understood as a Saharo-Sahelian innovation: this development is present in the Kanuri and For verbs, which show no morphological conversion of the simple stem. The For noun for "fire" bears a possible derivational suffixation indicating that it may be a separate derivation from the verb version of the root, rather than still another direct retention of simple stem. The For noun for "fire" bears a possible derivational suffixation indicating that it may be a separate derivation from the verb version of the root, rather than still another direct retention of the noun seen in Koman and Kunama. In any case, a distinct root, *wa:'yn (1392) may very possibly have meant "fire" in earlier For, as is suggested by the present-day For derivation of its word for "hearthstone" from that root by addition of the Nilo-Saharan *a- attributive-deriving prefix.

1422. *'wa:r   "large carnivore, especially leopard or hyena"

Koman: UDUK wārē' "spotted"	[stem plus NS *-eh n./adj. deriv. suff.]
CSud: PCS *'wa "wild animal"	
CSud: ECS *ka'wa "leopard"	[NS *kʰ n. pref. plus stem]
SONGAY kóorò "hyena"	[NS *kʰ n. pref. plus stem]
Kir-Abb: proto-Daju *oRai "animal"	[stem plus NS *y n. suff.]
Kir-Abb: Nil: WNil: JYANG koor, PL. kɔɔr "lion"	[NS *kʰ n. pref. plus stem]
Kir-Abb: Nil: PENil [*-waru "spotted carnivore" (Lotuko-Maa *-waru; BARI kwaru "serval cat"): LOAN (expected Lotuko-Maa *-warr-)]	[Bari: NS *kʰ n. pref. plus stem]

Vossen (1982) relates the East Nilotic root to proto-Bari *gwɔrɔŋ "wild beast, carnivore," attributed here to a different root, 430. Alternant shapes (ogwaru/owwaru) in Lokoya of Lotuko suggest and vowel variants elsewhere suggest these two roots merged in some Eastern Nilotic languages.

1423. *'wè OR *'wèh   "to blow"

CSud: PCS *'we "to blow"	
FOR kuwo "air"	[NS *kʰ n. pref. plus stem]
Kir-Abb: GAAM ùù "air; wind"	[stem plus NS *w n. suff.?]
Kir-Abb: Nil: WNil: JYANG wei "to breathe"	[stem plus NS *'y ess.-act.]

1424. *'wé   "to tell"

Koman: UDUK ó "to speak; to rebuke"	
Sah: ZAGHAWA óyá: "to speak"	[stem plus NS *-a dispunc.]

FOR u- "to say"
FOR uu "talk (n.)" [stem plus NS *-Vh or *w n. suff.]
SONGAY hŏ "demander (surtout entre homme et [< *hóN, stem plus NS *n dur.?]
femme, en vue de l'accouplement), quémander"
Astab: Nub: DONGOLAWI wɛː "to say, say of, call,
name, say to, tell"
Kir-Abb: GAAM ónnɔ́- "to cry" [proposed earlier *we-ŋ-n-aw-, stem
plus NS *ŋ punc. plus NS *n dur.
plus NS *w punc.]
Kir-Abb: NYIMANG wen "to speak" [stem plus NS *n dur.]
Kir-Abb: Nil: WNil: NAATH wɛ "to answer, say,
exclaim, call out"

1425. *'w e d   "to fly"
CSud: PCS *'we "to fly"
Astab: Taman: TAMA awɪːr "lower arm" [NS *a- n. deriv. pref. plus stem; se-
mantics: earlier "wing" > "forearm"]
Astab: PNub *awir "wing" (DONGOLAWI aur, [NS *a- n. deriv. pref. plus stem (as in
NOBIIN awir) Tama)]
Astab: Nub: DONGOLAWI kawirtɛ "bird" [NS *kʰ n. pref. plus stem of "wing"
plus NS *tʰ n. suff.]
Astab: Nub: NOBIIN kawarti "bird" [structure as in Dongolawi reflex]
Kir-Abb: Nyimang *wɔr "bird" (NYIMANG wɔr, [Dinik: stem plus NS *tʰ n. suff.]
DINIK ɔrdo)
Kir-Abb: proto-Daju *uduce, PL. *uduuge "wing" [stem plus NS *-Vh n. deriv. pref. plus
Daju sing./pl. suff.]
Kir-Abb: Surmic: DM: DIDINGA wir "to fly"
Kir-Abb: Nil: PNil *wer "to go fast" (WNil: JYANG [Jyang: NS *a- n. deriv. pref. plus
awer "race"; ENil: BARI wurö "haste") stem]

Western Astaboran innovation: derivation of a word for "wing" by addition of the *a- noun attri-
butive prefix to the verb stem. Daju "wing" is a separate derivation from the root as its different
derivational morphology shows. Note that Nubian "bird," although on the surface resembling the
widespread Nilo-Saharan root *kʰipɛr "bird" (root 572), does not show regular correspondence in
either the initial stem consonant or the stem vowel with that root, but does fit regularly here.

1426. *'w e l   "to pour, spill (intr.)"
Koman: UDUK wòl "to pour, of water, spill on
ground"
CSud: PCS *'we "to pour, spill"
KUNAMA ulle- "to melt"
FOR kòlà "tears" [stem plus NS *-ah n. deriv. suff.; k- is
FOR n. pl.]
Astab: Nub: DILING ol "to draw water"
Kir-Abb: GAAM wòld "canal, channel, ditch" [stem plus NSud *ʈ n. suff.]
Kir-Abb: NYIMANG wuli, wɪli "blood" [stem plus NS *-ih n. deriv. suff.]
Kir-Abb: Nyimang *kwɔl "river" (NYIMANG [NS *kʰ n. pref. plus stem]
kwɔl, DINIK kwɔlək)
Kir-Abb: NYIMANG kwulil, DINIK kwɔlga "cold" [NS *kʰ n./adj. pref. plus stem; Nyi-
mang: plus NS *l n./adj. suff.; Di-
nik: plus NS *k adj. suff.]
Kir-Abb: Nil: WNil: OCOLO wɔlo "ditch for water"

Kir-Abbaian semantic innovation: A shift in the meaning of the simple verb from spilling to flow-
ing along a channel is attested in the Gaam and Ocolo nouns for "ditch" (possibly originally a fur-

row draining excess water from planted ground) and in Nyimang "river." The older sense is still
implied in the Nyimang noun for "blood"; the Nyimang and Dinik adjectives for "cold" show a dif-
ferent shift of meaning to "to be wet," hence "be cold" (of water).

1427. *'w è l   "to bruise, wound"
Koman: UDUK ülmány "bruise" [stem plus NS *m and *ɲ n. suff.]
Koman: UDUK úlācʰūlācʰ "adverb of throbbing, [stem plus NS *tʰ n./adj. suff., redup.]
ache"
CSud: PCS *'we "to hurt"
Sah: KANURI wùl "to bruise"
Astab: NARA wolla "wound"
Kir-Abb: Nil: ENil: BARI wɛlan/wel-an "swelling"/ [stem plus NS *n dur.; verbal n. < v.]
"to swell"
Rub: IK ɪwɔɫíwɔ́ɫ- "to cut meat while knife or spear [*i- v. class pref. plus redup. stem as
is still sticking in it" iter., i.e., keep wounding by
cutting]

1428. *'w é ʈ   "mouth" [root 1424 plus NS *ʈ'/*ʈ n. suff.]
Koman: GULE itən "mouth" [stem plus NS *n n. suff.]
KUNAMA uda "mouth" (ILIT wida)
FOR útò "mouth"
Kir-Abb: GAAM ɔɫg, PL. ùɫg "mouth" [sing.: stem plus NS *k n. singul. suff.;
pl.: stem plus NS *kʰ n. pl. marker]
Kir-Abb: C.Jebel: AKA udu, MOLO ɔdu, KELO udu
"mouth"
Kir-Abb: BERTHA ndù "mouth" [could consist of stem plus NS *k n.
singul. because NS *kʰ > Ø /_# in
Bertha; for initial nd-, see Bertha
shift 2 in Commentary to Table 2.9]
Kir-Abb: TEMEIN iʈuk, Pl. kuʈiŋ "mouth" [sing.: stem plus NS *k n. singul.; pl.:
NS *kʰ pl. marker plus stem plus pl.
in *n (common pl. formative pattern
in Temein)]
Kir-Abb: proto-Daju *ikke, *ukke "mouth" [*itk-/*utk-, stem plus NS *k n. singul.
suff.]
Kir-Abb: Surmic *otu(k) "mouth" [stem (plus NS *k n. singul. suff.)]
Kir-Abb: PNil *kuːʈok "mouth" (PWNil *ɗok; [NS *kʰ n. pref. plus stem plus NS *k
PENil *kutuk; PSNil *kúːt, PL. *kùːt) n. singul. suff.; WNil: regular WNil
deletion of *kV /#_CVC after voic-
ing of medial C (*kuːʈok > *kuːɗok
> *ɗok; SNil: see notes to this root]

Kir-Abbaian morphological innovation: The formation of a new singular form *weːʈok, stem
plus the Nilo-Saharan *k singulative suffix, is widely attested in the languages of this group. That
the Western Nilotic reflex originally began with the prefix *kʰ- (pre-PWNil *kuːʈok) is required by
the voicing of the current word-initial consonant, the environment of proto-Western Nilotic conso-
nant voicing having been /CV_V. See root 762 for the same prefixation and sound shift history in
another Western Nilotic example. In pre-proto-Southern Nilotic, the development of secondary
forms of the nouns, marked in the plural by the suffix *-k, would have made *kuːtok identical in
shape to a stem *kuːt plus *-k plural secondary marker, and hence allowed the final syllable to be
reinterpreted as a movable element of productive morphology. Once that perception arose, it
would have become possible to delete final *-ok to produce both the appropriate singular and the
appropriate primary plural forms of the word, thus creating a new base form *kuːt.

1429. *'w é y   "windpipe, throat" [root 1423 plus NS *y n. suff.]
FOR kwi "neck" [NS *kʰ n. pref. plus stem]

Astab: Taman: TAMA ɛːwit "nape"

[NS *a- n. deriv. pref. (with regressive V assim., *a > *ɛ /#_Ci) plus stem plus NS *tʰ n. suff. (sing. marker?)]

Astab: PNub *eye "neck" (DONGOLAWI ɛyyɛ, DILING eː, KADARU eː, NOBIIN íyyí)

[*e-we-, NS *a- n deriv. pref. (with regressive V assim.) plus stem with *w > y /e_e]

The derivational affixation in Astaboran in particular shows that the meaning "neck" is probably secondary, and that some such meaning as that chosen here, "windpipe, throat," was the original sense. Western Astaboran innovation: derivation of meaning "neck" by addiiton of Nilo-Saharan *a- attributive prefix to stem (*a'wey > *ewey by regressive vowel fronting assimilation). The probably separate For generalization of this root to "neck" adds the Nilo-Saharan *kʰ noun prefix ('movable k').

1430. *'wéːy "to whet, sharpen, grind (stone blade)"

CSud: ECS *'u "to grind (tool), whet"

KUNAMA wia- "to grind (tool), whet"

[stem plus NS *-a dispunc.?]

FOR iw- "to smooth"

Kir-Abb: proto-Daju *wi- "sharp"

Kir-Abb: Nil: ENil: MAASAI -iyí "to whet"

[NS *i- v. class pref. plus stem; *w > Maa *y /#-(i)_i#]

This root can be proposed to have originally referred to the process of making ground or polished stone tools. Among the several vowel reconstructions possible here, *eːy was chosen because it is required by the Kir-Abbaian reflexes of the derived root 1431.

1431. *'wéːyh "point, tip" [root 1430 plus NS *-Vh n. deriv. suff.]

Saharan *wi "peak" (BERTI wi "mountain"; KANURI kǎu "stone")

[Kanuri: NS *kʰ n. pref. plus stem (< *kʰa-wi)]

Kir-Abb: DINIK weyá "tail"

[stem plus NS *-ah n. deriv. suff.; apparent separate derivation of same meaning as that seen in root 1442]

Kir-Abb: proto-Daju *iise "head"

[< *yii-s- < *wii-s- < *weːy-s, stem plus NS *s n. suff. (Daju sing.)]

Kir-Abb: Surmic: SWSurmic *oː- "head" (ZILMAMU owa, MURLE ɔː)

Kir-Abb: PNil *weːy "head" (WNil: BURUN wee, Jii *wɪc; PENil *-kué; SNil: DATOGA *úːh-)

[ENil: NS *kʰ n. pref. plus PNil root; Datoga *wV: > *uː, where V = [+front], and *h < earlier *-y-, hence *uːh-]

Addition of the *-Vh noun deriving suffix to the verb root is proposed here to account for the different vowel outcome in the Eastern Nilotic form of the noun from that found in the Eastern Nilotic verb, as attested in Maasai in root 1430. The derivability of this noun root from the verb root 1430 for sharpening a tool shows that its original meaning would have been "point, tip." Kir semantic innovation: shift of meaning from "point, tip" to "head" in all but Dinik, where a different specialization of the meaning of the noun took place, probably through the addition of a different form of the *-Vh noun suffix.

1432. *'wɛ̀ "to stay the night"

KUNAMA us- "to stay the night"

[stem plus NS *s prog.]

Sah: KANURI wà "to stay the night"

FOR oŋ- "to do by night"

[stem plus NS *ŋ punc.]

SONGAY hànnà "to stay the night"

[stem plus NS *ŋ punc. plus *n dur.]

Rub: IK ɛp- "to sleep"

[< *ɛb < *e'w]

Rub: IK [wɛ-ɛs "laziness": LOAN (expected *ɛb), probably from undiscovered CSud or Koman source]

Sahelian morphological and semantic innovation: *'wɛ̀ŋ "to do at night," stem plus Nilo-Saharan *ŋ punctive extension. The evidence of the Ik borrowed form implies that the original Nilo-Saharan meaning of the root was "to stay in place, not move" and that what is attested here in the currently available evidence is a Northern Sudanic semantic innovation, narrowing the application of the verb to a particular kind of staying, "to stay the night," with Kunama enhancing that meaning by adding an extension of extended action, and Songay reinstating that sense by a similar morphological addition.

1433. *'wéd "to gulp"

CSud: MM: LUGBARA 'weré "gulpingly"

[stem (CSud *'wɛ > Lugbara /'we/) plus CSud *-rV modif. suff. (NS *r)]

SONGAY hérí "to breathe with difficulty"

[stem plus NS *'y ess.-act.]

SONGAY hérsí "to swallow awry"

[stem plus NS *θ intens.]

Kir-Abb: Nil: WNil: OCOLO wɛr "to choke, strangle, go down the throat the wrong way"

This root is reconstructed with stem-final *d (rather than the alternatively possible *r) because that consonant is required in the related root 1434, with one root derived from the other by tonal shift, a process that operated relatively early in Nilo-Saharan (e.g., see note to root 1421). Sahelian semantic innovation: specialization of the application of the verb to gulping with accompanying difficulties in swallowing. The meaning of the related noun root 1434 implies an original focus of the verb on hurried ingestion itself, rather than on the possible uncomfortable consequences of so doing, as connoted in the Sahelian reflexes.

1434. *'wèd "hunger" [n. < v. root 1433 by tone shift]

CSud: ECS [*kɔrɛ "hunger": LOAN (expected *wɛ) from Kir-Abbaian language]

[NS *kʰ n. pref. plus stem (elsewhere only in Kir-Abbaian reflexes)]

FOR dùùr "hunger"

[d- is For n. sing. marker]

SONGAY hèréy "to be hungry"

[stem plus NS *'y ess.-act. as denom.]

Astab: PNub *orig "to get hungry" (NOBIIN òrg-, DONGOLAWI orig-)

[stem plus NS *k caus. as denom.]

Kir-Abb: proto-Daju [kəRase "hunger": LOAN (expected *kəd- OR *kər-) from other Kir-Abbaian language]

[NS *kʰ n. pref. plus stem plus NS *s n. suff. (Daju sing.)]

Kir-Abb: Surmic: DM *kɔra' "thirst"

[NS *kʰ n. pref. plus stem plus NS *-ah n. deriv. suff.]

Kir-Abb: Nil: PENil *-kurɛ "thirst"

[NS *kʰ n. pref. plus stem (plus NS *-eh n. suff.?)]

Surma-Nilotic semantic innovation: shift of application of noun from "hunger" to "thirst." Kir or Kir-Abbaian morphological innovation: addition of Nilo-Saharan noun prefix in *kʰ.

1435. *'wénd "to sink down, become low"

KUNAMA oda, odda "plain"

[< *ond-d-, stem plus NSud *ṭ n. suff.]

SONGAY héndì "down there"

Kir-Abb: Nil: WNil: OCOLO wɛny "to recede, sink away"

1436. *'wèns "dog"

SONGAY hánsì "dog"

Astab: NARA wos "dog"

Astab: Taman: MERARIT wiis "dog"

Kir-Abb: proto-Daju *iise "dog"

Kir-Abb: Nil: SNil: DATOGA gudéːdà "dog"

[root *kut- < *kwɪt, NS *kʰ n. pref. plus stem (KA *wɪns > Nil *wɪt, with *kʰ n. pref. > *kut]

FOR ásà "dog" is not a cognate; the expected shape of this root in For would be *òs-. The resemblance of the Datoga reflex to Eastern Cushitic *kuut- "dog" is argued here to reflect an early Nilotic loan in Cushitic, rather than, as has usually been presumed, a Cushitic loan in Datoga.

1437. *'wɛ́ŋ "ear"

SONGAY háná "ear"
SONGAY hánɡán "to hear" — [stem plus NS *n dur. as denom.]
Astab: Nub: DONGOLAWI uɲur "to know, understand" — [stem plus Nubian *r caus. as denom.; semantics: "ear" > "hear" > "understand"]
Kir-Abb: GAAM wɩnd, PL. wɩndəg "ear" — [stem plus NSud *ṯ n. suff.]
Kir-Abb: TEMEIN wenaṯ, PL. kwen "ear" — [sing.: *ŋ > n /_ṯ, with V insertion by proto-Temein syllable structure rules; pl. formed from this sing. by common Temein pattern]
Kir-Abb: proto-Daju *winete, PL. *win(V)ge "ear" — [phonology and syllable structure effects as in Temein entry; Thelwall 1981 has *wunute, PL. *wunuŋge; but *i, as preserved in NYALGULGULE winte "ear," should be reconstructed instead of *u]
Kir-Abb: Surmic *wɩnṯ "ear" (MAJANG wi:ɲa; DM *it) — [ZILMAMU wɩna "ear" is probably a Majang loan, rather than a true cognate]
Kir-Abb: PNil *(y)iṯ "ear" (PWNil *yiṯ; PSNil *i:t) — [< pre-PNil *yinṯ < *wɩnṯ, stem plus NS *ṯ n. suff.; Ateker (ENil) *-kit "ear" is a chance resemblance (see root 1496 for its derivation)]
Kir-Abb: Nil: ENil: BARI [wɩnte, PL. wɩn "earplug": LOAN from unidentified Kir-Abbaian language, probably Daju-related]

Kir-Abbaian morphological innovation: addition of the Nilo-Saharan noun singular suffix in *ṯ (affix 78 in Chapter 7) to the stem (> *wɩnṯ). Surma-Nilotic innovation: incorporation of this suffix into the stem with new plurals built on it. A parallel development can be seen in Gaam.

1438. *'wɩ: "to cry out"

CSud: PCS 'u "to make loud repetitive noise"
KUNAMA wu- "to cry alarm"
Astab: Nub: DONGOLAWI, NOBIIN wi:g "to cry, scream, howl" — [stem plus NS *k intens. or *kʰ iter.]
Kir-Abb: GAAM únd- "to chant, sing" — [stem plus NS *n dur. and *tʰ cont.]
Kir-Abb: Nil: WNil: NAATH wi "to warn, call the people"
Rub: IK iwa-k "alarm" — [stem (iw-) plus NS *-ah n. deriv. suff. plus NS *k singul. or *kʰ pl. suff.]

1439. *'wɩ́g OR *'wɩ́ɗ "to go back and forth"

Koman: UDUK wùgùlíɗ "to wobble, as of baby" — [stem plus NS *l iter. plus NS *ṯ intr.]
Koman: UDUK wùgùr "to go in circles" — [stem plus NS *r iter.]
CSud: ECS *'wi OR *'we "to twist, turn"
KUNAMA ugu- "to wave"
Astab: Taman: TAMA wigit, PL. wigiye "bird" — [semantics: < flapping (going back and forth) of bird's wings]
Kir-Abb: Nil: WNil: NAATH wuɔk "to loosen by working back and forth"

1440. *'wɩ́h "to burn (tr.)"

CSud: ECS *'wi "to burn (tr.)"
KUNAMA wia "sun, day"
Sah: KANURI wùyɩ́t "to singe and scrape off hair" — [stem plus NS *tʰ cont.]
FOR ùyà "flame" — [stem plus NS *-ah n. deriv. suff.]
SONGAY hɩnà "to boil in water, prepare a meal" — [stem plus NS *n dur.]
Astab: Taman: TAMA u: "fire" — [stem plus NS *-Vh n. deriv. suff.?]
Rub: IK káú (káwí-) "ash" — [NS *kʰ n. pref. plus NS *a- n. deriv. pref. plus stem]
Rub: IK iwiiɲ- "to singe off" — [stem plus NS *ɲ extend.]
Rub: IK wɩzɩlɩl- "to smell burnt old hides or animals (bad smell that can make one vomit)" — [stem plus NS *'y ess.-act. plus probably NS *l iter., with PRub *ɬ (< PNS *l) > l /wizi_, as in root 1412]

1441. *'wɩ́r "to shine (of sun, etc.)"

Koman: UDUK wúrwúr "very, very hot" — [adj. by redup. stem]
Saharan *wir- "moon" (BERTI werr, etc.)
FOR wírí "star" — [stem plus NS *-Vh n. deriv. suff.?]
Maban: MIMI kurrak "white" — [NS *kʰ n./adj. pref. plus stem plus NS *-ah adj. deriv. suff. (plus -k sing.]
Astab: Nub: NOBIIN úrr- "to light"
Kir-Abb: NYIMANG kʷùr "moon" — [NS *kʰ n. pref. plus stem]
Kir-Abb: ENil: PENil *-kuruo- "ashes" [LOAN? Expected *-kurr-] — [NS *kʰ n. pref. plus stem plus NS *w n. suff. (*kʰ-wir-Vw-]
Rub: IK ɩwír- "to shine (of sun, moon)" — [*i- v. class pref. plus stem]

This root is provisionally reconstructed with *'w instead of *w because it appears to consist of the root seen in 1440 preceding, but with addition of the Nilo-Saharan *r iterative.

1442. *à'wè:yh "tail" [NS *a- n. deriv. pref. plus root 1431]

CSud: MANGBETU n-a'wi "tail"
FOR dàwì, PL. kàwìntò "tail"
Astab: Taman: TAMA awi "snake"

The reconstruction chosen here presumes the derivation of this from root 1431, *'we:yh "tip, point," an apt description of the tail of an animal. An alternative possible reconstruction would be simply *a'wi:.

PROTO-NILO-SAHARAN STEM-INITIAL *w or *'w (*W)

1443. *wa:d OR *'wa:d "to grow dark, become night"

Astab: Taman: *wa:r "night" (TAMA wa:r, SUNGOR war)
Kir-Abb: C.Jebel *ɔrɔg- "black; night" (AKA ɔrɔɔga, MOLO ɔrwa, KELO ɔrrɔ, ɔyyɔ) — [stem plus NS *k adj. suff., with n. < adj.]
Kir-Abb: Surmic: SWSurmic *kor- "black" — [NS *kʰ n./adj. pref. plus stem]
Kir-Abb: Nil: PWNil *wa:r "night"
Kir-Abb: Nil: PENil *-kewar- "night" — [NS *kʰ n. pref. plus stem]
Kir-Abb: Nil: ENil: Ateker *-war- "to grow dark"

The verb is at present directly known only from the Ateker branch of Eastern Nilotic, but its very early existence in the Nilo-Saharan family is indirectly attested by the noun and adjective derivations from it in Taman, Surmic, and Eastern Nilotic and by a very widespread old Nilo-Saharan

noun *aWa:d "night" (root 1465). This root, from its morphology (Nilo-Saharan *a- attributive noun prefix plus stem), can be seen to be an older derivation from the same verb root, separate from the several Eastern Sahelian derived nominals seen here.

1444. *wàɗ OR *'wàɗ   "to dig up, dig out"

CSud: WCSud: KRESH awa "to dig land"   [CSud *V- pref. plus stem]

Astab: Nub: DONGOLAWI wadd-, NOBIIN wàdd-   [*wart-, stem plus NS *tʰ cont.]
"to dig, dig up, dig out"

Kir-Abb: Nil: WNil: NAATH wat "to take earth out of a hole"

Kir-Abb: Nil: ENil: TESO -wad "to clean out (container)"

Kir-Abb: Nil: ENil: BARI -woɗot "to carve (wood)   [stem plus NS *tʰ cont.]
deeply"

Other possible reconstructions: *wāɗ or *'wāɗ.

1445. *wāɖ OR *'wāɖ   "injury, illness"

KUNAMA orga- "to bruise"   [stem plus NS *k caus. (as denom.)]
FOR waja "illness"

Astab: Nub: DONGOLAWI odd- "to feel pain, fall   [*ort-, stem plus NS *tʰ cont. (as de-
ill; to be painful, hurt"   nom.)]

Astab: Nub: NOBIIN òdd- "to be sick"   [structure as in Dongolawi]

Astab: Nub: DILING uj-er "to make sick"   [stem plus Nubian *r caus.]

PRub *ɔ'j "wound" (IK ɔ́'ja-)

MABA waja "pain" is probably a borrowing of ARABIC waja' "pain," despite its resemblance to this root; in any case, NS *ɖ most probably yields MABA r /V_. The For noun, on the other hand, shows the expected correspondences and so is included here as a legitimate reflex.

1446. *wàl OR *'wàl   "to light, set afire"

KUNAMA walo- "to prepare food"
FOR duwal, PL. kolta "moon, month"

Astab: Nub: NOBIIN wàll- "to boil, overcook"   [gemin. C-# as intens. or dur.?]

Kir-Abb: NYIMANG walai- "to boil (tr.)"   [stem plus NS *'y ess.-act.]

Kir-Abb: WNil: OCOLO wal "to boil, bubble"

Kir-Abb: ENil: BARI walala "to boil, bubble up"   [partially redup. stem plus NS *-a dif-
fus.?]

Rub: IK [walám- "to begin dawning": LOAN (ex-   [stem plus NS *m iter. conc. > Ik intr.]
pected *waɬ-)]

Eastern Sahelian semantic innovation: A narrowing of the meaning of the verb to a particular kind of fire-induced action, boiling, is present in all the non-borrowed Eastern Sahelian reflexes. Nilotic shows a further shift, to intransitive usage. The borrowed verb in Ik implies the older sense.

1447. *wà:l OR *'wà:l   "to speak out"

Koman: UDUK wàl gwò "to talk fast; to talk within a conversation" (gwò "speech, word")

CSud: BALESE 'iwa "to sing"   [CSud *V- pref. plus stem; PCS *w and *'w > Baledha /w/]

Astab: NARA wol "word, speech, language"

Astab: NARA walay- "to say"   [Nara n. plus NS *'y ess.-act. as de-
nom.]

Astab: Taman: TAMA wa:l- "to laugh"

Kir-Abb: C.Jebel: KELO ull- "to say"

Kir-Abb: DINIK ɔlɔ "tongue"   [stem plus NS *-Vh n. deriv. suff.?]

Other possible reconstructions: *wā:l or *'wā:l.

1448. *wap OR *'wap   "to grow (in size), grow up"

Koman: OPO opoʔ "person"   [stem plus NS *-Vh n. suff.; semantics:
"grow" > "live" > "living being"]

Koman: GUMUZ oboma "big"   [stem plus NS *m adj. affix]

Sah: KANURI wáp "ideophone of sudden standing   [semantics: "grow" > "rise" > "stand"]
up motion"

Kir-Abb: Nil: WNil: OCOLO wɔp "youth, young man; to mature into a man"

Rub: SOO wabak "fat (adj.)"   [stem plus NS *k adj. suff.]

1449. *wàr OR *'wàr   "to pour, spill (intr.); to rain"

Koman: UDUK wòr "river (dry in dry season)"
Kunama: ILIT oor-a "rain"
Sah: DAZA war "to water"
FOR kóró "water"   [FOR k- pl. marker (mass-pl.) plus stem
plus NS *-Vh n. deriv. suff.]

Astab: Nub: DONGOLAWI ka:rɛ "fish"   [< *kʰ-war-ay, NS *kʰ n. pref. plus
stem plus NS *y n. deriv. suff., as
in PSNil reflex below]

Astab: Nub: DILING ork- "to piss"   [stem plus NS *kʰ iter.]

Astab: Nub: DILING wart- "to give to drink"   [stem plus NS *ţ caus.]

Astab: Nub: NOBIIN órk- "to be cool"   [stem plus NS *kʰ intr.; semantics: "to
be wet, damp" > "be cool"]

Kir-Abb: NYIMANG wɔrn- "to pour"   [stem plus NS *n dur.]

Kir-Abb: proto-Daju *koR- "rain, sky"   [NS *kʰ n. pref. plus stem]

Kir-Abb: proto-Daju *wara "clean"   [stem plus NS *-Vh n./adj. deriv. suff.?;
semantics: "wet, wash" > "clean"]

Kir-Abb: Nil: WNil: JYANG uar "river"

Kir-Abb: Nil: PSNil *kwar- "fish" (SING. kwaʀay)   [NS *kʰ n. pref. plus stem; sing. shows
NS *y n. suff., as in Nubian reflex]

Rub: Wn Rub *war "to rain"

Rub: SOO ortai "Lake Kyoga"

Rub: IK ɔrɔr (ɔrɔrɔ́-) "ravine, stream"   [stem plus NS *tʰ and *y n. suff.]
[redup. stem (as iter. of flow of water?)]

Eastern Sahelian innovation: derivation of noun for "fish" apparently from this root. This derivation would seem to imply as well an underlying shared Eastern Sahelian semantic extension of the verb meaning to the "flowing along" of the fish in the water.

1450. *wáṭ' OR *'wáṭ'   "to chew on"

Koman: UDUK wóc' "to bite, sting"
KUNAMA oti- "to sip, drink in drafts"   [probable semantic influence of resem-
blant reflex of root 1455 can be seen
here]

Astab: Taman: TAMA wac- "to gnaw"

1451. *wa:y OR *'wa:y   "edible grain"

KUNAMA awa "flour"
KUNAMA kawa "porridge"   [NS *a- n. deriv. pref. plus stem]
[NS *kʰ n. pref. plus preceding Kunama
n.]

FOR nuŋ "food"   [n-, For n. sing. marker, plus stem plus
NS *ŋ n. suff.)]

Astab: Nub: DILING weːti, PL. weː, weːi "ear of grain"

[stem plus NS *-Vh n. suff. (to explain V length), as in Gaam reflex) ·

Kir-Abb: GAAM ə̀yə̀ "ear of sorghum"

[stem plus NS *-Vh n. suff.]

Kir-Abb: C.Jebel: AKA wiico, MOLO wooso "seed"

[for stem-final *y > AKA c, MOLO s, see also root 1418]

Kir-Abb: Nil: WNil: JYANG awou "bulrush millet"

[NS *a- n. deriv. pref. plus stem (plus NS *w n. suff.?)]

Possible Eastern Sahelian innovation: A derivation of a noun for "ear of grain," by addition of the Nilo-Saharan noun formative in *-Vh, seems possibly attested in both the Diling and Gaam reflexes.

1452. *kʰwaːy OR *kʰ'waːy "seed-corn" [NS *kʰ n. pref. plus root 1451]

CSud: PCS [*kwi "seed": LOAN (expected *kwɛ) from an ESah language (Astaboran?)]

Astab: Nub: DILING kweː "sowing festival"

Kir-Abb: proto-Daju *kuce, PL. *kuɲ "bulrush millet"

[stem plus Daju *-ce/*-ɲ sing./pl. suff.]

Kir-Abb: Nil: WNil: NAATH kwai "seed-corn"

Kir-Abb: Nil: ENil: BARI kwe "ear (of corn)"

Rub: IK ékwéd, PL. ékwín "seed, nut"

[stem *ekw by regular PRub sound shift < *kwe (NS #CV# > PRub *#VC#)]

1453. *wèd OR *'wèd "sheep"

FOR wùrí, PL. wùrìŋ "sheep"

Astab: PNub *werti "sheep" (DONGOLAWI urt- "goat, sheep, flock, possession"; DILING orti "sheep, ewe"; etc.)

[stem plus NS *tʰ n. suff.]

Kir-Abb: GAAM ə̀ə̀r "sheep"

Kir-Abb: NYIMANG kwɛdi "ram"

[NS *kʰ n. pref. plus stem]

Kir-Abb: PNil *kwero(i)- "he-goat" (PENil *-koro(i)-; SNil: DATOGA qwaraida)

[NS *kʰ n. pref. plus stem plus NS *w n. suff.; Datoga also adds SNil n. 2ndary suff. (-da)]

Kir innovation: addition of Nilo-Saharan *kʰ noun prefix plus stem, with shift of application to male sheep (and then to he-goat in Nilotic).

1454. *wéːɗ OR *'wéːɗ "to fight"

Sah: KANURI wùráp "to beat severely" (H)

[stem plus NS *-a dispunc. plus NS *pʰ extend. intens.]

FOR weer- "to fight"

Maban: MABA were "battle"

[stem plus NS *-Vh n. deriv. suff.]

Astab: Nub: DILING oj "to struggle, fight"

Kir-Abb: Nil: WNil: NAATH wɛt wɛt "to go to fight"

[redup. stem as incep.?]

1455. *weʈʰ OR *'weʈʰ "to sip"

KUNAMA uti- "to sip"

Kir-Abb: proto-Daju *wad- "to swallow"

Kir-Abb: Nil: WNil: OCOLO wɛʈ "to sup, drink, sip"

PRub *wet "to drink"

Rub: IK [ɪwɛt- "to sip": LOAN (expected *iwet) from Nilotic]

[*i- v. class pref. plus stem]

1456. *wɛɬ OR *'wɛɬ "ram"

FOR dole, PL. koleŋa "ram"

Kir-Abb: Daju: SHATT wolo "he-goat"

PRub *kɔl "goat wether" (IK kɔl)

[NS *kʰ n. pref. plus stem]

1457. *wɛr OR *'wɛr "he-goat"

Astab: Taman: TAMA wɛr "bull"

Kir-Abb: NYIMANG kuɽusù "ewe"

[NS *kʰ n. pref. plus stem plus NS *s n. suff. (probably originally sing. as in Soo reflex) with similarly a shift in application to a female animal]

Astab: Nub: DILING war "he-goat"

Kir-Abb: Nil: SNil: Kalenjin *kwɛr "he-goat"

Rub: SOO korá' "goat wethers" (suppl. pl.)

[NS *kʰ n. pref. plus stem]

[NS *kʰ n. pref. plus stem plus NS *-a pl. analogized in form to SOO -ɛ' pl. < NS *-ɛh (affix 63, Chap. 7)]

Rub: SOO was, PL. weet "ewe-lamb, young she-goat"

[< earlier *wɛras, PL. weret, with regular SOO loss of non-initial *r]

An underlying earlier Rub shift of meaning of this root to "non-bearing goat," probably originally prefixed shape maintaining the sense "goat wether" and the non-prefixed form coming to apply to an as yet not bearing female. This root is not known outside Eastern Sahelian as yet, but was included here because readers might otherwise think these terms to be reflexes of the separate roots *Wed "sheep" (1453) or *Weɬ "ram" (root 1456).

1458. *'wéːr "husk, rind, shell"

Koman: UDUK wărmàc' "husk, pod, eggshell"

[stem compounded with element *mac' not otherwise recorded, of uncertain meaning]

Sah: KANURI wúlí "cowry shell"

[stem plus NS *'y n. suff.; if attribution here is correct, then other Nigerian languages have borrowed their forms of this root from early Kanuri]

FOR dɪrɔ́ŋ, PL. kíròŋà "egg" (Meinhof 1917/18: diuroŋ, PL. kiuroŋa)

[Meinhof records the earlier, apparently underlying shape: For sing./pl. pref. plus stem (-ur-) plus NS *ŋ n. suff.)]

Astab: NARA [wari "egg": LOAN (expected *wer-)]

[see notes to this root]

Kir-Abb: GAAM ə̀ə̀r "bark of tree"

Kir-Abb: Nyimang: DINIK ɔrta "skin"

Kir-Abb: TEMEIN [waris, PL. kwara "egg": LOAN (/a/ for expected *ɛ)]

[stem plus NS *tʰ n. suff.]

Kir-Abb: proto-Daju [*waɬa "egg": LOAN (expected *e; also expected *R?)]

The Nara and Temein, and probably the Daju, forms of this root can be taken as reflexes of a single proto-Eastern Sahelian borrowing, *War "egg," for which the shift of PNS *ɛ to *a suggests a Koman origin (cf. the Uduk entry here).

1459. *wík OR *'wík "protruberance, thing that sticks up"

Koman: UDUK úkʰ "little high piece of land or island amidst the water"

Koman: GULE íⁱga "horn"

KUNAMA uga "stone, rock"

[semantics: common NS linkage of "hill, mountain" with "stone" explains this meaning]

KUNAMA ugume- "to form a protruberance, swelling" | [stem plus NS *m adj. affix; adj. > v.]

KUNAMA uguneda, ugumeda "bleeding horn" | [stem plus NS *m/*n adj. markers plus NSud *ţ n. suff.; semantics: from shape of horn on head of animal]

Kir-Abb: Nil: WNil: OCOLO wik "to show, protrude"

1460. *wîl OR *'wîl "hip"

Koman: OPO [wʋl "tail: LOAN from WNil]
FOR díwìl, PL. kíwìltò "thigh"
Maban: MABA oluk, PL. olusi "tail" | [stem plus NS *-uh n. suff.]
Astab: Taman: TAMA aul "leg" | [NS *a- n. deriv. pref. plus stem]
Kir-Abb: TEMEIN kwolţiŋ "legs" (suppl. pl.) | [*k-wol-ţin, Temein regular *k- pl. of nouns plus stem plus *-ţiŋ pl. suff.]

Kir-Abb: Nil: PWNil *wil "tail"
Kir-Abb: Nil: WNil: JYANG kul "leg"

The reconstruction of stem-final *l rather than *ļ is required by the evidence of the derived root 1461. The different morphology of the Maba and Western Nilotic words for tail shows them to be probable separate semantic derivation from the original meaning of the root. Shared Kir innovation: NS *kʰ noun prefix plus stem, with the meaning "leg," is attested in both Temein and Jyang.

1461. *kʰwil OR *kʰ'wil "buttocks" [NS *kʰ n. pref. plus root 1460]

KUNAMA kula, kura "buttocks"
Sah: KANURI kùlí "anus" | [stem plus NS *-'y n. suff.]
Astab: PNub *kulul "hip" | [stem plus NS *l or *ļ n. suff. or else partially redup. stem]
Kir-Abb: GAAM kúlmú "buttock" | [stem plus NS *m n. suff.]
Kir-Abb: Surmic *kul- "tail" (SESurmic *kur; SW Surmic *kul-; MAJANG kul) | [NS *l > Surmic *l > SWSurmic *r, but > *l elsewhere]

1462. *wîl OR *'wîl "to clear out, clear off"

KUNAMA uluma "weed" | [stem plus NS *m n. suff.; semantics: < earlier v. "to weed," i.e., clear field]
Sah: KANURI wùl "to remove hairs from a skin; take away a piece of skin (e.g., from abscess so pus comes out)" | [homonymous with and probably influenced in 2nd meaning by Kanuri reflex of root 1427]
FOR dúló, PL. kuloŋa "hole" | [stem plus NS *w n. suff.]
Kir-Abb: Nil: WNil: NAATH wʋl "to open path"

Sahelian semantic innovation: shift of verb to the clearing the surface of something to clearing an opening into or through something.

1463. *wîl OR *'wîl "to breathe out"

Koman: UDUK àwúlpʰé "breath, steam" | [NS *a- n. deriv. pref. plus stem plus NS *pʰ extend. intens., "to breathe" (let air out repeatedly), plus NS *y n. suff. (< *awilpʰaːy)]

KUNAMA ula- "to flutter, be carried by wind" | [stem plus NS *-a dispunc.?]
KUNAMA ula "body, life" | [semantics: implies earlier sense, as seen in Uduk, "to breathe"]

KUNAMA ulida "someone, everyone" | [preceding Kunama n. plus NSud *ţ n. suff.; semantics: "body, life" > "person" > "someone"]

FOR uil- "to winnow"
FOR daulu, PL. kaulu "wind" | [NS *a- n. deriv. pref. plus stem plus *-Vh n. suff.]
Maban: MABA aulik "wind" | [NS *a- n. deriv. pref. plus stem; -k is Maban n. sing. marker]
Kir-Abb: Surmic: S.Surmic: TIRMA uru "wind" | [stem plus NS *-Vh n. suff.]

Other possible reconstructions: *wîl or *'wîl. Northern Sudanic semantic innovation: The Kunama and For verbs and the For, Maba, and Surmic nouns all imply a shift to the blowing of the wind. The earlier application of this root to the expelling of air from the mouth is overt in the Uduk noun and preserved in the Kunama noun derivations from the verb. Possible Sahelian innovation: A shared derivation of a noun for "wind" by addition of the Nilo-Saharan *a- attributive noun forming prefix appears in both For and Maba, but because For and Maba are spoken in adjoining regions of the sudan belt, an early loanword spread from one to the other cannot be entirely ruled out.

1464. *wîļ OR *'wîļ "to tear down (residence)"

Sah: KANURI wùr "to push down (wall), to remove roof"
FOR dulu, PL. kuluŋa "deserted village"
Astab: DONGOLAWI wiil- "to demolish, pull down" | [stem plus NS *-Vh n. suff.] [gemin. as iter.]

1465. *awaːd OR *a'waːd "night" [NS *a- n. deriv. pref. plus root 1443]

KUNAMA awada "night"
Astab: Nub: NOBIIN áwá, PL. àwàrìi "night"
Kir-Abb: Daju: NYALA ode-jil "night" (jil "black") | [semantics: "dark (part of) day (of 24 hours)"]
Kir-Abb: Surmic: SWSurmic *kor "sun" (ZILMAMU koro; MURLE kor) | [NS *kʰ n. pref. plus stem; semantics: "day of 24 hours" > "day(time)," and with addition of *kʰ particularizing pref. > "sun"]
Rub: IK odo "day" (of 24 hours)

Eastern Sahelian semantic innovation: Daju and Rub directly, and Surma indirectly, share a meaning shift of this noun from "night" to "day of 24 hours," whereas Nobiin of Nubian preserves the earlier sense. This pattern would seem to be evidence for the joining of Kir-Abbaian and Rub together as a subgroup of Eastern Sahelian excluding Astaboran. But in view of the retention of the Sahelian root for night (see root 1213) in Nara of Astaboran, where borrowing cannot be supposed, and the apparently isolated occurrence of the Nobiin word within Nubian, the Nobiin reflex may well be a form back-shifted in meaning or else a loanword in that language from a non-Eastern Sahelian language of the Nilo-Saharan family.

1466. *òwîŋ OR *o'wîŋ "bull"

FOR nùùŋ, PL. kùùŋ "bull"
Kir-Abb: Nil: ENil: Lotuko-Maa *-ɔiŋ- "bull"

PROTO-NILO-SAHARAN STEM-INITIAL *y

1467. *y- << interrogative particle >>

Koman: KOMO yida "who?" | [stem plus KOMO da "this" (root 235)]
CSud: PCS *ya << interrogative particle >>
KUNAMA ye << interrogative particle >>

FOR ai "how?" (B)

FOR éí, PL. kèì "which?"

Kir-Abb: Surmic: S.Surmic: KWEGU iyɔ "what?"
Kir-Abb: Nil: ENil: TESO ai "where?"
Rub: SOO ɛ' "what?"

Rub: SOO ìyèn "what kind of?"

[NS *a- n./adj. deriv. pref. plus stem; later formation than FOR "which?" following because lacks V assim.]

[NS *a- n./adj. deriv. pref. plus stem with assim. fronting of *a-]

[stem plus NS *w n./adj. suff.]

[NS *a- n./adj. deriv. pref. plus stem]

[*yah, stem plus NS *-Vh nom. deriv. suff.]

{stem plus probably NS *en dem. root (255)]

1468. *yá / *yí   "that nearby"/"this referred to" (?)

Koman: UDUK yán "this" (dem. adj.)
Koman: UDUK yáásē "this one" (pron.)

Koman: UDUK yín "that spoken of formerly"
Koman: S.KWAMA ai "this"
CSud: WCSud: BONGO ya "here (but not right here)"
Sah: KANURI yínyí "such-and-such"

SONGAY yá "that (one)" (dem. pron.)
FOR i- << 3rd person sing. subj. marker >>
FOR íé / ìè "he, she, it"/"him, her, it"

FOR ìèèŋ "they"
Astab: NARA yi: "this"
Kir-Abb: C.Jebel: AKA -e, -ɛ "this"
Kir-Abb: C.Jebel: AKA, KELO -i "that"
Kir-Abb: Nil: ENil: MAASAI -aɪ "another, the other, more" (indef. pron.)
Kir-Abb: Nil: SNil: Kalenjin *-i- "this"

[1st stem plus NS *n n./adj. suff.]
[1st stem plus *ese (for which see root 1215)]
[2nd stem plus NS *n n./adj. suff.]
[NS *a- n./adj. pref. plus 2nd stem]
[1st stem]

[2nd stem plus NS *ne, *en dem., root 256 (*n > KANURI ny /_i)]

[*yiɛh, 1st stem plus NS *ɛh 3rd person pron. (root 1588)]
[FOR íé "he, she, it" plus FOR -ŋ pl.]
[2nd stem]
[< *ya, 1st stem]
[2nd stem]

[NS *a- n./adj. deriv. pref. plus 2nd stem]

[2nd stem]

1469. *yá   "mother"

Koman: Sn Koman *ya "mother"
Koman: Gumuz: SAI ya:ya "mother"
KUNAMA yaya "mother" (vocative)
Sah: KANURI yâ "mother"
Sah: DAZA aya "mother"
FOR íà "mother"
FOR yaŋa "wives" (suppl. pl.)
Maban: RUNGA ya "mother"
Astab: Taman: TAMA i: "woman, wife"
Astab: Nub: GULFAN aya "mother"
Astab: Nub: MIDOB iya "mother"
Kir-Abb: GAAM yāā "mother"

Kir-Abb: TEMEIN aya "mother"
Kir-Abb: Daju: NYALA yaa "mother"
Kir-Abb: Surmic *ya- "mother"

[redup., probably as vocative]

[stem plus *ŋ pl. suff.]

[possibly < *ya-ah, stem plus NS *-ah 1st person sing. pron., originally "my mother"]

[see structure proposed for Gaam entry]

Rub: IK yáŋ "my mother"

[stem plus relict 1st person sing. poss. pron.? (*-aŋ, NS *ah 1st person sing. pron. (root 1583) as poss. plus stem?]

An alternate shape *aya/*iya, probably originating as a vocative, appears widely in the Saharo-Sahelian citations here.

1470. *yâ   "to flow"

Koman: UDUK yà "to flow out"
Koman: UDUK yàt̪áyàt̪ "wet"
Koman: KWAMA iya' "water"

Koman: GULE aaye "water"
Koman: Gumuz *aya "water"
SONGAY yà "flood, inundation"
Kir-Abb: Nil: PENil *-kiyyo "tears"

Rub: IK yawiyaw "small stream"

[stem plus NS *t̪' n. suff., redup.]
[*ayah, NS *a- n. deriv. pref. plus stem plus NS *-Vh n. suff.]

[NS *a- n. deriv. pref. plus stem]
[NS *a- n. deriv. pref. plus stem]

[NS *kʰ n. pref. plus stem plus NS *w n. suff. (*ki-ya-w)]

[stem plus NS *w n./adj. suff., redup.]

Proto-Koman *aya or *ayah "water," adding the Nilo-Saharan *a- attributive noun deriving prefix to the stem (and possibly also the Nilo-Saharan *-Vh n. suff.) occurs in the Gumuze, Southern Koman, and Gule languages. UDUK yìɗé' "water" derives, on the other hand, from a different verb root altogether (1491), as does Tubu (Saharan) *yi (root 1597). OPO ji, KOMO 'i'i, and UDUK yì'í (found in Bender 1983c but not in the Uduk dictionary), all meaning "water," also cannot be made to correspond to this root and belong, like the Tubu reflex, under root 1597. Possible Eastern Sahelian innovation: derived noun *yaw "liquid, fluid," seen in Ik and Nilotic.

1471. *yà OR *yā   "to hurt (intr.)"

FOR diya, PL. kiyaŋ "sore (n.)"
Kir-Abb: Nil: ENil: MAASAI -ya "to suffer, be sore"
Rub: SOO ay "verb expressing ritual danger" (W)

1472. *yâ, *yɛ, *yɔ   "to go/come"

Koman: Sn Koman *ya "to go" (UDUK yà "to go (sing. subj.)"
CSud: PCS *yɛ "to move (intr.)"
CSud: PCS *yɔ "to go"
KUNAMA ya "come!"
Sah: KANURI yát "to carry away, bring to a place"
FOR -yV- "go" (some persons, some tenses)
Maban: MABA -ya- "to enter"
Maban: MABA -ye- "to travel, go"
Kir-Abb: C.Jebel: KELO ɔya "come!"
Kir-Abb: Nil: WNil: OCOLO yo, PL. yïït̪ "road"
Kir-Abb: Nil: ENil: MAASAI -yiayá "to go to"
Kir-Abb: Nil: ENil: MAASAI éù "to come"

[stem plus NS *t̪ caus.]

[redup. 1st stem]
[2nd stem plus NS *-uh ven.]

For other Nilo-Saharan #CV# verbs of motion with alternative vowels, see roots 708, 1029, 1289, 1303, and 1372.

1473. *yá OR *yáh   "to drink"

CSud: PCS *ya "to drink"
Saharan *yá "to drink" (KANURI yá-; ZAGHAWA dʸá-; etc.)

Other possible reconstructions: *yā or *yāh.

1474. *yád   "to say a name, speak to by name"

Koman: UDUK yér "name"

KUNAMA kída "name"   [NS *kʰ n. pref. plus stem]

FOR karío "name"   [FOR *k- pl. marker (with "name" as
                                     syntactically pl. n.) plus stem plus
                                     NS *y n. suff. plus *-o suff., origi-
                                     nally itself a pl. marker]

Maban: MABA -er- "to speak"

Astab: NARA ade "name"   [stem plus *y (*-ɛy) n. suff.?]

Astab: Nub: DONGOLAWI ɛrr(i) "name" [stem plus *y (*-ɛy) n. suff.?]

Kir-Abb: PNil [*kaːʀɪn "name" (WNil: JYANG rin;   [NS *kʰ n. pref. plus stem (if this is the
ENil: Maa *-karna; PSNil *kaːʀɪn): LOAN (or   same root) plus NS *n n. suff.;
chance resemblance?): *ʀ instead of expected *r] WNil: regular deletion, *C₁V- > Ø
                                                  /#__CVC# in PWNil, where C₁ =
                                                  velar]

Rub: PRub *yɛd "name" (IK éd (édi-); SOO yêd, [stem plus *y (*-ɛy) n. suff.?]
PL. yêdút)

The For, Astaboran, and Soo nouns give every appearance of being reflexes of a single Sahelian
noun root, *yadɛy, formed by adding *-ɛy noun suffix to the verb. The Kunama noun may be a
separate formation from the verb root. Or since Kunama nouns in isolation all end in -a, it may
preserve the same early noun seen in the Sahelian instances. Proto-Nilotic root *kaːʀin "name"
seems a plausible derivative also of this root, but if so it entered proto-Nilotic via borrowing from
some other Nilo-Saharan language; it resoundingly fails the test of regular sound correspondence,
and in fact it may well derive from some other, distinct and as yet unnoted early Nilo-Saharan verb
root.

1475. *yāːɖ   "to grasp"

SONGAY yàarì "to hold, retain, keep, take, carry in   [stem plus NS *'y ess.-act. (*-i'y)?]
the arms"

Astab: NARA ad, PL. atti "hand"

Astab: Nub: DONGOLAWI aːr "to seize, grip,
grasp, catch, take; to obtain, get"

Kir-Abb: Nil: WNil: NAATH yaʈ "to snatch away"

1476. *yáh   "to flow in, flow over"   [root 1470 plus NS *-uh ven.?]

Koman: UDUK yá' "to vomit"

SONGAY yéy "to be cold"   [stem plus NS *'y ess.-act.]

SONGAY yéení "cold"   [Songay v. plus NS *n modif. suff.]

Kir-Abb: Nil: ENil: MAASAI -yá "to drown"

Kir-Abb: Nil: ENil: BARI yaya-'yu, yɛyɛ-'yu "to   [redup. stem as iter.]
undulate (water)"

Rub: IK yéit-it- "to fill"   [stem plus NS *tʰ cont. plus Rub *t
                                     caus. (NS *ʈ)]

1477. *yákw OR *yágw OR *yáɠw   "young person, adolescent"

Sah: KANURI yàá "elder brother, sister"   [*yaga, stem plus NS *-Vh n. deriv.
                                          suff.]

Sah: KANURI yâgànà "brother, sister"   [stem plus NS *n n. suff.]

SONGAY yagaw "young bull up to three years old" [stem plus NS *w n. suff.]

Astab: PNub *egwed "small livestock" (NOBIIN   [stem plus NSud *ʈ n. suff.]
égéd, DONGOLAWI ɛged "sheep"; BIRKID
ɛgidi "goat"; DILING ogud "goat"; etc.)

Kir-Abb: Nil: SNil: DATOGA hágwéːndà "heifer"   [*yakwaːn-, stem plus NS *n n. suff.
                                                (-da is Datoga n. 2ndary sing. suff.)]

Sahelian semantic innovation: shift of meaning to the maturing young of livestock, specifically
seen in the Songay and Southern Nilotic reflexes. In proto-Nubian, the root (with addition of a
further suffix) was generalized to all smaller livestock.

1478. *yâk' OR *yāk'   "to be young"

Koman: UDUK yā' "son"

CSud: PCS *ya "young, weak"

KUNAMA ik- "to fall sick"

KUNAMA ikka/akka "son, daughter; fruit"/"my   [semantics: "be young" > "be weak" (as
son, my daughter"   also in CSud reflex) > "be sick"]

Kir-Abb: GAAM yaa(n) "new"   [2nd form: adds NS *-ah 1st person
                                               sing. root]

Kir-Abb: Surmic: SWSurmic *cak'- "new"   [stem (plus NS *n modif. suff.)]

Kir-Abbaian semantic innovation: shift of meaning from "young" to "new."

1479. *yàːk'   "to spread (tr.)"

Koman: UDUK [yèkʰ "to sow (scatter) seed; to
sprinkle water with hand": LOAN from language
in which PNS *k' > /k/]

CSud: PCS *ya "to spread apart (tr.)"

Sah: KANURI yàk "to distribute, divide, split up"

Rub: PRub *yak'- "to be far (away)" (SOO yag   [semantics: "spread apart" > "far"]
"far"; IK yak'- "to be far (away)"]

1480. *yāːp   "to go fast"

Koman: UDUK yápʰyàpʰ "fast, quickly"   [adj./adv. by redup. stem]

SONGAY yàabì "to hasten, hurry"   [stem plus NS *'y ess.-act.]

1481. *yáːs   "to become thoroughly wet"   [root 1470 plus NS *s prog.]

Koman: UDUK yèsáyès "slippery, smooth"   [adj. by redup. stem]

KUNAMA assa- "to float, float up abundantly"

SONGAY yéesí "to quench thirst"

Astab: Nub: DONGOLAWI ɛss- "water"   [stem plus NS *'y ess.-act.]

1482. *yàʈ   "to water animals"   [root 1470 plus NSud *ʈ caus.]

KUNAMA ido- "to return animals to pasture after
having taken them to drink"

Sah: KANURI yètt- "to water animals"   [*yetC-, possibly *yetk-, stem plus NS
                                       *kʰ iter. (for plural object)]

1483. *yàːwpʰ   "to heat over a low fire"

Koman: UDUK [yáápās "smoking pipe": LOAN   [stem plus NS *s n. suff.]
(expected *yaapʰ-), from Gaam-related language]

Koman: GULE ufun "ashes"   [stem plus NS *n n. suff.]

Koman: Gumuz *wof- "ashes" (SAI wofa, SESE
mfa, KOKIT ofa)

CSud: PCS *yo "to warm"

KUNAMA yoba "oven"

Sah: KANURI wùfá "to boil"   [possible loan, however: preservation of
                                           NS *y here is unexpected]
                                           [stem plus NS *-a dispunc.]

Astab: NARA ofko "sultriness, heat"   [stem plus NS *k adj. suff. (Nara reflex -ko)]

Kir-Abb: GAAM yə̀ws "smoking pipe"   [stem plus NS *s n. suff.]

Kir-Abb: Nil: ENil: BARI [yuyu-'ya "to broil (by "flame)": LOAN from CSud]   [redup. stem]

The Uduk form of this root reflects a surely very recent areal spread of a noun seen also in the reflex cited for the nearby Gaam language. Koman innovation: derivation of noun for "ashes."

1484. *yaːy   "body of animal"

FOR dèi "fat"   [d- is For n. sing. marker]

Maban: MABA koi, PL. koitu "leather, hide"   [NS *kʰ n. pref. plus stem]

Maban: MABA koik "skin"   [NS *kʰ n. pref. plus stem; -k is Maba n. sing. marker]

Kir-Abb: proto-Daju *iye "meat"

Kir-Abb: Surmic: DM: LARIM yɪ "cow" (suppl. sing.)   [semantics: cow as a source of meat]

Rub: Wn Rub *yey "meat"

Rub: IK kaɛ "tortoise; tortoise shell"   [NS *kʰ n. pref. plus stem; semantics: "body" > "skin" > "shell"]

Vowel length is reconstructed here to account for its undoubted presence in the derived word for "cow" in root 1485. Because this root underlies that old word for "cow, head of cattle," it may have meant "meat" at the proto-Northern Sudanic stage, at which time, on present evidence, root 1485 was derived from it. By the Sahelian period, represented by the known attestations presented above, the root *yaːy is proposed to have shifted to the meaning reconstructed for it here, thus allowing for its development of the meaning "hide" in Maban. If this history is correct, then the meaning "meat" was later separately recreated in Daju and in Western Rub. An alternative proposal is that the root took on the meaning "meat" in proto-Eastern Sahelian.

1485. *yáːyr   "cow, head of cattle"   [root 1484 plus NS *r n. suff.]

KUNAMA aira, aila "cow"

KUNAMA [ara "wild cow, antelope, small buffalo": LOAN (apparently from early Nara)]

Sah: BERTI eir "cow"

SONGAY yàarù "bull; brave; to be brave"   [stem plus NS *-uh n./adj. deriv. suff.; v. < adjectival use]

Astab: NARA ar, PL. are "cow"

Kir-Abb: Nil: PSNil *(y)eːʀ "male of cattle"

The Nara reflex, as far as can be told at present, shows the expected regular sound correspondences. Its current meaning may reflect the areal influence of the cognate form in the long-time neighbor language, Kunama, because the range of meanings of the borrowed form of this root in Kunama suggest that the root earlier in Nara referred to cows which were less tame behaving in some fashion. Such a meaning would be consistent with the evidence of the Songay and Southern Nilotic reflexes, which imply a Sahelian semantic innovation narrowing the application of the root to the male of cattle. Males, at least until gelded, are certainly the more unruly sex among cattle.

1486. *yeː   "eyes (suppl. pl. or dual)"

Koman: Sn Koman *ye "eyes" (UDUK ē "eyes"; OPO je "eye")

Koman: GULE yáan "eye"   [stem plus NS *n n. suff.]

Sah: ZAGHAWA i "eye"

Astab: Nub: DILING iː-er "to know"   [stem plus Nubian *r caus. as denom.; semantics: "to see" > "to know"]

Kir-Abb: GAAM ɛ́d, PL. ɛ́dɛ́g "eye"   [stem plus NS *ʈ n. sing. suff.; pl.: adds *kʰ pl. suff. to sing.]

Kir-Abb: TEMEIN kɛɛn "eyes"   [*k-ɛɛ-n, regular TEMEIN k- pl. pref. of n. plus stem plus *n pl. or NS *n n. suff.]

Kir-Abb: Nil: PENil *-yen "to know" (Vossen 1982: *-yyen)   [stem plus NS *n dur. as denom.]

Widely scattered relict evidence indicates that this root did not originally denote the eye, but most probably referred to the eyes in the plural or dual: (1) in Uduk it is supplemented by "pínyä' ē" for "eye (sing.)"; (2) the Gaam reflex analyzes into *ye plus *ʈ singular suffix, with the plural recreated by adding a further plural marker; (3) it forms the base of the Temein suppletive plural of "eye" (whereas as distinct root, 1379, provides the singular); and (4) the root occurs isolated for "eye" in Zaghawa, displacing another root found everywhere else in Saharan, and thus showing itself to have had some other meaning than "eye (sing.)" in pre-Zaghawa. The most economical explanation of these several outcomes is that *ye was originally a suppletive plural, at least in the Sudanic languages pairing with *waŋ "eye (sing.)" 1379). A third root *moy (root 143), often applied to "eye" in particular Nilo-Saharan langugages, is proposed to have meant "upper part of face"; see notes to roots 44 and 143 for further discussion. A fourth root word *wɛ (1423), probably also originally applying to the eyes in some collective sense, perhaps also a suppletive plural, appears to have been the base of the singular formation *waŋ (root 1379).

1487. *ye OR *yeh   "string, strand"

CSud: PCS *ye "string"

FOR dìíŋ, PL. kííŋ "root"   [*-i-ŋ, stem plus NS *ŋ n. suff.]
                                   [*kʰo-i, NS *kʰ n. pref. plus stem]

Astab: Nub: DONGOLAWI koi, koːi "tendon, sinew"

Kir-Abb: NYIMANG jè "hair"

Kir-Abb: Nyimang: DINIK iyá "hair"   [*ye-a, stem plus NS *-a pl.]

Kir-Abb: TEMEIN kijeʈ "hair"   [NS *kʰ pref., probably regular Temein pl. marker, plus stem plus NSud *ʈ n. suff.]

Kir-Abb: PNil *yey "hair" (PWNil *yey "hair"; PSNil *(y)eʀ "root")   [stem plus NS *'y n. suff.; SNil: PSNil *Y > *ʀ /#(C)V_#, where V = [+front/+ATR]; see also roots 410, 625, and 1533 for this regular shift]

The semantic reconstruction followed here implies a Kir semantic innovation, the narrowing of the application of this root to a particular kind of strand, "hair." The For reflex, because of its distinctive suffixation, can be taken as a separate coining of the meaning "root" from that seen isolated in the Southern branch of Nilotic.

1488. *yɛ̃n   "fatty portion of meat"

Koman: Sn Koman *yèn "fat" (UDUK yìn "suet, fat"; KOMO yɛn "fat"; OPO jɛni "fat")

Koman: UDUK àyìn "oil"

CSud: PCS *ne "flesh"   [NS *a- n. deriv. pref. plus stem]
                              [pre-PCS shape *yeneh, stem plus NS *-Vh n. suff., must be postulated to account for different outcome from that in root 1489]

KUNAMA ana "fleshy part of mammae of animals"   [semantics: mammae consist of fatty tissue]

Saharan *yeni "meat" (DAZA yini; ZAGHAWA enni; BERTI ni)   [probably stem plus NS *-ih pl. suff. (as mass pl.)]

FOR niino "meat"   [FOR n- n. sing. pref. plus stem plus NS *-o n. pl. suff. (as earlier mass pl. formation)]

Rub: IK ínw (ínó-) "animal, game"   [stem plus NS *-o n. pl. (as early mass pl. formation in meaning "meat," as also preserved in For)]

Saharo-Sahelian semantic innovation: shift of application of the root from the fat parts of the meat to meat in general. Sahelian morphological innovation: addition of *-o plural marker, explainable like Saharan *-i suffix, as a mass plural reckoning of meat as substance rather than discrete object. A further semantic innovation, a shift from "meat" to "animal," as overtly attested in Ik, then took place, possibly by or before the proto-Eastern Sahelian period, since two other innovated root words for "meat" can be argued for Eastern Sahelian, 1266 and 1484. Another root that has widely taken on the meaning "meat" is 383.

1489. *yéŋ   "to expand in size"
CSud: PCS *ye "to swell"
FOR iŋ- "to ripen; to become"   [stem plus NS *ŋ punc.]
Astab: Nub: DILING eɲ "to become full"
Kir-Abb: Nil: SNil: Centr.Kal *(y)eːt "to enlarge,   [stem plus NS *tʰ cont.; *VNCʰ > *V:C
  grow"   in PNil]

1490. *yént̪'   "to stretch out, extend, enlarge (tr.)"   [root 1489 plus NS *t̪'/*t̪ caus.]
Koman: UDUK yét̪'/het̪' mèd̪ "to stretch out hand"
  (mèd̪ "hand")
Koman: UDUK yét̪é' "very straight (posture)"   [stem plus NS *-Vh n./adj. deriv. suff.]
CSud: PCS *nde "to thicken, widen"
KUNAMA anda "big, much, aged, old"
Sah: KANURI yén "to stretch (clothes, leather)"
SONGAY yèndì "to spread out, spread out to dry"   [stem plus NS *-i itive; expected
    *yéndí? This form would seem to
    imply mid-tone root *yēnt̪']
Astab: Taman: TAMA kɛdi, PL. kɛriy "wide"   [NS *kʰ n./adj. pref. plus stem]
Kir-Abb: GAAM íṭín "heavy, unmovable"   [stem plus NS *n adj. suff.]
Kir-Abb: Surmic: MAJANG jeːd̪o "long"
Kir-Abb: Nil: ENil: MAASAI -yiét "to stretch"

1491. *yɛːd̪   "to spill, flow out"
Koman: UDUK yìd̪é' "water"   [stem plus NS *-eh n. deriv. suff.,
    added since *d̪ > UDUK d̪ /_#]
KUNAMA ir- "to gush"
Sah: KANURI yér "to defecate, have diarrhea"
SONGAY yéerí "to vomit"   [stem plus NS *-i itive]
Kir-Abb: Surmic: MAJANG yeːrm "blood"   [stem plus NS *m n. suff.]
Kir-Abb: Nil: WNil: OCOLO [yid̪ "to pour out of
  jug": LOAN from Koman (expected *yɛd̪)]

Saharo-Sahelian semantic innovation: A narrowing of the focus of action of the verb to the flowing out of fluid from the body is attested in all the Saharo-Sahelian citations except for the Koman loanword in Ocolo.

1492. *yɛh   "to lie (down)"
CSud: PCS *yɛ "to lie, be still, stay in place"
KUNAMA i- "to go down, descend"
Sah: ZAGHAWA e "to lie"
Sah: proto-Kanem *yes- "to kill" (KANURI yèz-,   [stem plus NS *ṣ caus. (> Kanuri [z]
  KANEMBU yey-)   /V_V]
Sah: TUBU yit- "to kill"   [stem plus NS *t̪/*t̪' caus.]
SONGAY kàaỳ "ancestor"   [NS *kʰ n. pref. plus NS *a- n. deriv.
    pref. plus stem (*kʰ-aa-yi); seman-
    tics: one who has died]

Maban: MABA -y- "to die"
Astab: Taman *-yi- "to die" (TAMA, SUNGOR -iy-,
  MERARIT -y-)
Astab: Taman: TAMA iŋa "corpse"   [stem plus NS *ŋ n. suff.]
Kir-Abb: Nil: ENil: Lotuko-Maa *-yɛ "to die"

Semantic innovation dating at least to the Sahelian and possibly to the Saharo-Sahelian stage: A shift of meaning from lying down to dying is directly attested in the Maban and Eastern Sahelian reflexes and indirectly in words found in Songay and the Bodelean branch of Saharan. The derivational composition of the Bodelean forms implies a proto-Bodelean root *ye "to die." However, Zaghawa, clearly a member of Saharan, has maintained the simple, unextended root in its original meaning. And that makes it probable that the meaning "to die" was innovated twice in the history of this root, once very long ago by the common ancestor of Sahelian group (here represented by Songay, Maban, Taman, and Eastern Nilotic reflexes) and once later in history by the proto-Bodelean language. That is not to say that the two meaning shifts were necessarily independent of each other: more likely than not, semantic influences from a nearby Sahelian tongue that used *yɛh for "to die," such as a Maban language, may have encouraged the parallel meaning shift in Bodelean.

1493. *yɛh   "they" [NS *y pl. marker (affix 65) plus NS *ɛh 3rd person pron. (root 1588)]
Koman: Gumuz *-ii- << 3rd person pl. subj. marker
  of v. >>
CSud: PCS *yɛ "they"
KUNAMA i-/ii- << 3rd person sing./pl. obj. mark-   [pl: proposed stem plus NS *a pron. pl.
  ers of v. >>   marker, realized as V lengthening;
    for same phenomenon in 1st and 2nd
    pl. obj. markers, see Kunama re-
    flexes in roots 1583 and 1601]
KUNAMA ime "they"   [*yeme, stem plus -me base of all Ku-
    nama pl. pron. (see root 160 for this
    base]
KUNAMA imme "they (dual)"   [*ye-C-me, stem plus assim. suff. (in
    *n?) plus *-me suff. of Kunama pl.
    pron.; see root 1601 for same sur-
    face structure in 2nd person dual]
KUNAMA iŋa/iŋe "his, her, its"/"theirs"   [*yeŋ-, stem plus NS *ŋ gen. marker]
Sah: Tubu *y << 3rd person pl. subject marker >>   [Cyffer relates this to older *s 3rd per-
    son marker of Saharan (see root
    1156; in Kanuri dialects *s > y, but
    that connection may be less well
    based when extended to Tubu]
FOR -e- << 3rd person pl. element in poss. and loc.   [see root 1374 for further discussion of
  pronouns >>   For poss. and loc. pron.]
SONGAY ì "they"
Maban: MASALIT ée "they"
Astab: NARA -i << 3rd person pl. subj. marker >>
Kir-Abb: W.Jebel *Vge "they"   [W.Jebel base *Vg- of the pl. pron. (see
    root 410) plus stem]
PRub *it(i) "they" (SOO ítíá, IK ńtí-)   [stem plus redundant *t pl. suff. by anal-
    ogy to Rub *bit- "you (pl)" < *bi
    "you (sing.)" (see root 51) where *t
    was not redundant]
Rub: IK -it << 3rd person pl. marker of v. >>

The reconstruction *yɛh, rather than the alternatively possible *yɛ, is chosen here because that shape makes derivational sense (see bracketed derivation above) and because it explains vowel length in the Masalit and Gumuz reflexes and the tonal outcome in Songay. It sees *y- as a denoter of plural number added to the originally singular stem *ɛh "him, her, it" (root 1588). The Gumuz

evidence, together with that of the Kunama third person object pronoun markers and the Tubu and Nara subject markers, indicates that this root, in the reduced form *i(:)-, probably already in proto-Nilo-Saharan would have served as the third person plural subject marker in the verb conjugation.

1494. *yéːp   "projection, anything that sticks up or out"

Koman: UDUK yápʰ "porcupine"   [semantics: from the projecting quills of
                                                 the porcupine]

KUNAMA eba "penis"
Astab: Nub: DONGOLAWI aːb "top of riverbank"
PRub *ɛb "horn" (Ik éba-)   [stem plus NS *-ah n. deriv. suff.]

1495. *yíd OR *yɪd   "to twist, bend"

CSud: PCS *yi "to bend, twist"
Kir-Abb: Nil: WNil: OCOLO yïr "to twist (in making
   rope)"
Rub: IK ídem "snake"   [stem plus NS *m n. suff.]

1496. *yɪh   "grass"

Koman: GULE èyí' "green"   [NS *a- n./adj. deriv. pref. (with front-
                                                 ing assim., *a > e /#_Ci) plus stem]

CSud: ECS *yi "grass" (BALEDHA ɨ)
FOR dàí "grass"   [FOR d- n. sing. pref. plus NS *a- n.
                                                 deriv. pref. plus stem]

Maban: MABA koiek, PL. koɲi "leaf; ear"   [NS *kʰ n. pref. plus stem plus number
                                                 suff. (sing. *ko-i-ek; pl.: stem -i-
                                                 fully assim. to palatal C of pl. suff.)]

Kir-Abb: Nil: ENil: PTung'a *-kwi- "leaf" (TESO a- [NS *kʰ n. pref. plus stem (*-k(w)-i-)]
   kiot, PL. a-kwii "leaf," a-kit, PL. a-kii "ear";
   MAASAI ɛn-kɪɔɔk, PL. in-kíyiaa "ear")

Trans-Sahel morphological innovation: addition of *kʰ noun prefix to the stem. What makes this a probable single event is that the accompanying vowel of the prefix was back round in both cases (*kʰo-), whereas a front vowel would be the normal component with a front stem vowel in purely Nilotic word derivations (and in fact the back realization is elided in the Eastern Nilotic reflexes in all but one Teso plural form). The development of the meaning "leaf" was surely the accompanying semantic innovation of the morphological one, since *kʰ can be reconstructed as originally a kind of specifier (see Chapter 6), and a leaf is a single thing whereas grass is a mass quantity. The application "ear" was surely, on the other hand, an independent extension of meaning in Maba and Eastern Nilotic. In the latter language group it replaced the proto-Nilotic root for "ear" seen in 1437 above (together these data show that this root, 1496, and root 1437 are distinct despite the surface resemblance seen here in the Teso singular for "ear"). The linking of words for "ear" to roots meaning "leaf" is a recurrent pattern in Nilo-Saharan and goes far back in the history of the family; see roots 44 and 937 for further discussions of the sources of this association.

1497. *yíːl   "to notice, pay attention to"

Koman: UDUK híl "to watch, look"
Koman: KOMO yil "to see"
CSud: PCS yi "to notice"
Astab: Nub: DILING il-ir "to show"   [stem plus Nubian *r caus.]
Kir-Abb: BERTHA ìːlè "ear"   [stem plus NS *y n. suff.]
Kir-Abb: NYIMANG -íl- "to see" (definite stem]
Kir-Abb: Nil: ENil: MAASAI -ší1 "to appraise,
   scrutinize"

1498. *yíːl OR *yíːɬ   "to call"

CSud: PCS *yi "to name"

KUNAMA ikki- "to creak"
KUNAMA iligi- "to screech"
KUNAMA ilili- "to trill"
Sah: KANURI yìrgàt "to mention" (H)

FOR jiil- "to count"
Kir-Abb: BERTHA íːl- "to play"

1499. *yód   "calf (of leg)"

Koman: UDUK yórō' "lower leg"
Koman: UDUK àyórō' "shin, leg"

FOR duru, PL. kurunta "arm"

Rub: SOO yúd "calf (of leg)"

1500. *yóg OR *yóɟ   "to call out"

CSud: WCSud *yɔ "to cry, call out"
Sah: KANURI yàgàl "to yelp" (H)

Kir-Abb: Nil: ENil: TESO -yɔga "greeting"
Kir-Abb: Nil: ENil: TESO -yɔgan "to greet"
Other possible reconstructions: *yóg or *yóɟ.

1501. *yókw   "to drive herd"

Sah: KANURI yók "to drive, herd"
SONGAY yógó "to bustle, stir, move about to
   gather the herd and send it to pasture"
Kir-Abb: Nil: PENil *-yok "to herd"
Kir-Abb: Nil: PSNil *yɑkw "to herd"
Rub [*yakw, *eakw "to herd": probable LOAN
   from SNil (expected *yokw-?)]

1502. *yóːl   "to sink (intr.)"

Koman: UDUK yúl "to set, of sun"
KUNAMA uleda "notice of death given by drum;
   dance in memory of any deceased"

SONGAY yóolè "to be immersed, to drown"

1503. *yóːl   "to part, come away"

KUNAMA olei- "to step aside, draw away"
Sah: KANURI yòrd "to accompany"

SONGAY yólkú "to loosen, undo"

Kir-Abb: GAAM yóld- "to leave"

1504. *yóːm   "to not be"

CSud: PCS *yɔ "to not be"

[*ilk-, stem plus NS *kʰ iter.]
[stem plus NS *k intens.]
[redup. stem as iter.]
[stem plus NS *kʰ intr. plus NS *ʈ
   caus.]

[semantics: from the happy calling out
   that tends to accompany playing]

[stem plus NS *-Vh n. suff.]
[NS *a- n. deriv. pref. plus preceding
   Uduk v.]
[stem plus NS *-uh n. deriv. suff.; se-
   mantics: lower leg > forearm > arm]

[stem plus NS *l iter. (> intens. in
   Kanuri)]
[stem plus NS *-ah n. suff.]
[stem plus NS *n dur. as denom.]

[stem plus NSud *ʈ n. suff.; semantics:
   presumed earlier use of "sink" as a
   euphemism for death]
[stem plus SONGAY -e (proposed NS
   *a dispunc. plus NS *-i itive)]

[stem plus NS *'y ess.-act.]
[stem plus NS *ʈ caus. > tr., i.e., to
   come away with (someone)]
[stem plus NS *kʰ iter. plus NS *-uh
   ven.; shift > tr. sense]
[stem plus NS *ʈ caus.]

KUNAMA omiŋa "uselessly, vainly"   [stem plus NS *ŋ n./adj. suff.]
SONGAY yáamò "(for) nothing; for free"

Apparent Northern Sudanic semantic innovation: narrowing of the meaning of the root from "to not be" in general to a specific kind of non-existence, the lack of a return for one's effort.

1505. *yú "to leak"

Koman: UDUK yú "to pour out of small mouth"
KUNAMA us- "diventare tuttofango"   [stem plus NS *s prog.]
SONGAY yúttú "to be viscous, smooth, gluey, slip-   [*yust-, stem plus NS *s prog. plus NS
   pery, flowing"   *tʰ cont. (*st > tt /V_V is a regular
                                         outcome in Songay)]
Rub: IK yuúd- "to be soft, of ground"   [stem plus NS *d adj. suff., with v. <
                                         earlier adj.; semantics: wet ground is
                                         soft]

If the explanation offered for the Songay shape is correct, then Kunama and Songay attest a Northern Sudanic derivation of an extended form of the root, connoting being viscously moistened.

1506. *yùːɗ "to make collapse, cause to fall"

Koman: UDUK yúɗúɗ "to be uprooted (of tree)"   [stem plus NS *l̩ intr.]
Sah: KANURI yùr- "to fall down"   [shift: tr. > intr. sense]
SONGAY yùrkàm "to wither"   [stem plus NS *kʰ intr. plus NS *m iter.
                                         concis.]
Kir-Abb: Nil: WNil: NAATH yuot "to kill"

1507. *yūh "liquid, fluid" [root 1505 plus NS *-Vh n. suff.]

Koman: UDUK yù'áyù' "liquid (adj.), thin"   [redup. stem]
FOR ùyù "dew"   [NS *o- n. pref. (in assim. shape, *o- >
                                   u- /#_Cu) plus stem]
SONGAY yù "honey"

1508. *áy OR *āy "goat"

FOR déí, PL. keita "he-goat"
Kir-Abb: TEMEIN kai "goats (suppl. pl.)"   [NS *kʰ pl. affix plus stem (regular Te-
                                       mein pluralization pattern)]
Kir-Abb: proto-Daju *aiše "goat"   [stem plus NS *s n. suff.; *s > Daju *š
                                       /ai_e#]
Kir-Abb: Surmic: DM ɛːθ "goat"   [stem plus NS *s n. suff. as in Daju]

The attested Nilo-Saharan reflexes of this root allow several possible reconstructions: *áy, *āy, *á'y, *ā'y, *háy, *hāy, *há'y, or *hā'y. But since this word is an apparent borrowing of the Northern Cushitic (pre-Beja) root *ay, itself derived from proto-Cushitic *ʔaz- "goat, sheep" (by regular Northern Cushitic sound shift, *z > *y /V_), only the first two choices *áy and *āy are possible. Kir morphological innovation: addition of the Nilo-Saharan noun suffix in *s, probably originally as a singular marker.

1509. *àyí "belly"

Koman: UDUK ē "amid"
Kunama: ILIT kay-a "belly"   [NS *kʰ n. pref. plus stem]
Astab: NARA aite, eite "body, person, self"   [stem plus NSud *t̪ n. suff.]
Astab: PNub *ai "heart"
Kir-Abb: C.Jebel: AKA ei "self"   [simple stem]
Kir-Abb: C.Jebel: KELO iyɔ "heart"   [structure as in Bertha]
Kir-Abb: BERTHA (W) ayu, (F) ìyɔ, (M) ìyúː   [stem plus possibly allomorph of *w n.
   "belly"   suff.]

Kir-Abb: Nil: PWNil *(y)ac "belly"   [*c < preWNil *y /V_#]
Kir-Abb: Nil: MAASAI ɛnk-ayá "stomach"   [NS *kʰ n. pref. plus stem]
PRub *ai "rib" (IK aí-)

The meaning "heart" was probably separately innovated as the meaning in Nubian and in Kelo.

1510. *áyr "other" [*a-y(i)-r, NS *a- n./adj. pref. plus dem. root 1468 plus *r adj. suff.]

Kunama: ILIT eer-a "other"
FOR kèèr "another" (B: ker, PL. kerŋa)
SONGAY cèrè "the other, each other"
Astab: Nub: DONGOLAWI ɛːr "new, fresh"   [NS *kʰ n./adj. pref. plus stem]
Kri-Abb: West Daju *kerak "other"   [NS *kʰ n./adj. pref. plus stem plus NS
                                       *k adj. suff.]
Rub: IK erúts "new"   [stem plus NS *tʰ n./adj. suff.]

Sahelian morphological cum semantic innovation: addition of the Nilo-Saharan *kʰ prefix to the root to form a pronomial, "the other, another." Eastern Sahelian semantic innovation: shift in the meaning of the unmodified original root from "other," hence "different," to "new" (different from before).

1511. *êːy, *êːyaw "front of the body"

FOR dìò "stomach"   [2nd root shape; d- is FOR n. sing.
                                       pref.]
Maban: MABA yo "face"   [2nd root shape]
Kir-Abb: C.Jebel *iiw- "breast" (AKA iiwice, PL.   [2nd root shape plus different number
   iwiidi; KELO əwiidi)   markers]
Kir-Abb: PWNil *yaw "front of the body" (OCOLO   [2nd root shape]
   yaw "front of body of animal"; JYANG yɔu
   "bosom")
Kir-Abb: Nil: SNil: DATOGA jeːda "belly"   [1st root > *yeː > Datoga *jeː-]
Rub ey- "stomach contents" (NYANG'I ɛyat; IK   [1st stem?]
   eyú-)

The first root shape is attested only in Maa of Eastern Nilotic and Datoga of Southern Nilotic and possibly in Rub. But its traceability back to proto-Nilo-Saharan is required by its presence as the underlying stem element in root 1512.

1512. *ɛːyl "body" [root 1511 plus NS *l n. suff.]

Koman: Gumuz *il- "belly" (SAI ila, KOKIT iːlo)
FOR dìːlú, PL. kiːlu "rib"   [stem plus NS *-uh n. deriv. suff.]
Astab: PNub *il "body" (DILING il, KADARU il)
Astab: Nub: KADARU èlt̪ó "rib"   [stem plus NS *t̪ n. suff. (probably as
                                       singul.); presence of same meaning
                                       in Kadaru and For may reflect old
                                       areal semantic influence]
Kir-Abb: GAAM ɛlg, PL. iilg "belly"   [sing: stem plus NS *k n. singul. suff.;
                                       pl.: stem plus NS *kʰ pl. suff.]
Kir-Abb: C.Jebel: AKA ɛlle, MOLO ılli, KELO ɛle "belly"
Kir-Abb: Surmic: DM *ɛlɛ "body"

This root also appeared as a proto-Nilo-Saharan animate marker of nouns (see affix 56, Chapter 6). Its application in the meaning "belly" in Gumuz and the Western Jebel languages is suspect as an areal semantic influence or a direct word-borrowing from one group to the other, because that meaning is restricted to areas near the Blue Nile River along the Sudan-Ethiopian border and to languages which were probably contiguous before the recent intrusions of Arabic.

PROTO-NILO-SAHARAN STEM-INITIAL *'y

1513. *'ya "tree"

Koman: Gumuz *ja "tree"
Sah: DAZA yede, PL. yeda "tree"   [stem plus NSud *ṭ n. suff.]
Astab: Taman: TAMA kiya:k "firewood"   [structure *ki-Ya-ŋ-kʰ, NS *kʰ n. pref. plus stem *Ya- plus NS *-n pl. or n. suff. plus NS *kʰ pl. is required to explain long V]

Astab: Taman: MERARIT kidi, PL. kiŋ "tree"   [sing.: NS *kʰ n. pref. plus stem (-i-) plus NS *ṭ n. suff. (> d, as sing.?); pl.: *ŋ pl. suff. substituted for *ṭ (viewed as ESah *Ṭ sing. marker)]

Kir-Abb: Surmic: S.Surmic: TIRMA kiano "tree"   [*k-ia-no, NS *kʰ n. pref. plus NS *n n. suff.]

Kir-Abb: Surmic: DM: DIDINGA kɛt, PL. kɛn "tree"   [sing.: NS *kʰ n. pref. plus stem plus *Ṭ suffixation; pl.: NS *kʰ n. pref. plus stem plus *n pl. suff.; see note below]

Kir-Abb: PNil *yaṭ, PL. *yan "tree" (PWNIL *yaṭ, PL. *yan "tree"; ENil: MAASAI ɔl-catá "tree, wood"; ɔl-càní "wood, tree")   [sing.: stem plus *Ṭ sing. marker; pl.: stem plus *n pl. (coll. in "wood")]

Kir-Abb: Nil: ENil: BARI kɛnɛ "sprig"   [NS *kʰ n. pref. plus stem plus *n suff.; see note below; semantics: "wood" > "bit of wood"]

Kir-Abb: Nil: PSNil *kéːt "tree"   [structure as in Didinga sing.]
Rub: SOO itat, PL. iti "branch"   [stem plus NSud *ṭ n. suff. (originally sing. marker as in other ESah cases)]

Saharo-Sahelian morphological innovation: addition of Nilo-Saharan *ṭ'/ṭ noun suffix to stem. Eastern Sahelian developments: (1) The derivation of a multiple reference form of this root, probably collective in its original implication (i.e., "wood"), was brought about by substitution of final *n for final *ṭ, apparently interpreted as a singular marker. (2) Coexisting alternate forms of both root shapes were created by adding the Nilo-Saharan *kʰ prefix.

1514. *'yá OR *'yáh "to strike repeatedly and hard"

CSud: ECS *'ya "to fight"
KUNAMA ya- "to beat, knock, hit, strike"
Kir-Abb: GAAM yáá- "to break to pieces"

1515. *'yák "to shake (tr.)"

Koman: UDUK yìkʰìn ɨs "to shake (intr.)" (as leaves of a tree) (ɨs REFL.)   [stem plus NS *n dur., added since NS *k > UDUK kʰ /_#]
CSud: PCS *'ya "to shake"
SONGAY hágéy "to winnow"   [stem plus NS *'y ess.-act.]
Kir-Abb: Nil: PWNil *yak "to shake, especially to sift grain" (OCOLO yɛk "to shake (as grain sieve)"; NAATH yak- "to sift; to shake dura to get out fine"; JYANG yak "to shake")
Kir-Abb: Nil: ENil: BARI yɛyɛk-ta "to pulsate"
Kir-Abb: Nil: ENil: BARI ['ya-'yu "to fluctuate": LOAN from CSud]   [partially redup. stem as iter.]

Possible Sahelian semantic innovation: added specification of the verb to the actions of shaking to winnow and sift grain.

1516. *'yák'w "to be fearful"

Sah: KANURI yágá "to be apprehensive, fear unnecessarily"   [stem plus NS *-a dispunc.]
SONGAY háaw̃ "to be ashamed, intimidated"   [stem plus NS *w punc.]
Rub: IK 'jaʃwád- "to be a coward"   [stem plus NS *d adj. suff., with v. < earlier adj.; /ʃ/ < *k' in younger generation's speech]

1517. *'yál "to exclaim"

Sah: KANURI yàlú "to bark"   [stem plus NS *-uh ven.]
SONGAY héllì "to jeer at"   [stem plus NS *-i itive]
Maban: MABA yál-aŋ- "to cry out"   [stem plus NS *ŋ punc.]
Kir-Abb: Nil: PWNil *yal "to exclaim" (OCOLO yal "to curse in mild form"; NAATH yal "to exclaim")
Kir-Abb: Nil: ENil: TESO -yala "to chat; to joke"   [stem plus ENil *-a neut.]

1518. *'yàŋ OR *'yáŋ "to swallow"

Koman: Gumuz: 'GOJJAM' eŋ "to eat"
SONGAY hàŋ "to drink"
Maban: MABA yaŋ- "to drink"
Kir-Abb: Nil: WNil: OCOLO yaŋ "to be full, satisfied"

Songay-Maba (Western Sahelian) semantic innovation: narrowing of meaning to a particular kind of swallowing, drinking.

1519. *'yé "to tell"

Koman: UDUK yé ɨs "to leave word first decided on" (ɨs REFL.)
CSud: ECS *ye "to tell"
Saharan *ye "to say" (KANURI yé "to answer"; DAZA ye "to say"; ZAGHAWA i "to say")
Astab: Nub: DONGOLAW ɛ-, NOBIIN i- "to say"
Kir-Abb: BERTHA íːn- "to count"   [stem plus NS *n dur.]
Kir-Abb: Nil: ENil: TESO -i "to agree"
Kir-Abb: Nil: PSNil *iːt "to count"   [< *int < *yent, to explain V length: stem plus NS *n dur. (as in Bertha) plus NS *tʰ cont.]

Rub: IK [ɨ-ɨk'ɔt- "to be satisfied": LOAN from Ateker, of reflex seen in TESO -i "to agree" (expected *'je-)]   [stem plus IK itive]

Kir-Abbaian morphological cum semantic innovation: The addition of the Nilo-Saharan *n durative extension to produce the meaning "to count" (an extended action) can be overtly seen in the Bertha reflex and inferred from the surface outcome of the Southern Nilotic reflex.

1520. *'yé "to escape"

Koman: UDUK yé "to escape"
CSud: ECS *'ye "to hide (intr.)" (LUGBARA "to escape, take refuge")
FOR jeil- "to run"   [stem plus NS *l iter.]

1521. *'yɛ́ "to burn (intr.), shine"

Koman: UDUK yíṭʰ, híṭ' "to heat metal, water"   [stem plus NS *ṭ'/*ṭ caus.]
CSud: PCS *'ye "to light"   [shift > tr. sense]

CSud: ECS *'ye "day"
KUNAMA yau- "to shine, flash"   [stem plus NS *w punc.]
KUNAMA in- "to warm oneself at the fire, in the   [stem plus NS *n dur.]
  sun"
Kunama: ILIT i(y)- "to burn"
Sah: ZAGHAWA ye "fire"
FOR di "ash"   [FOR d- n. sing. pref. plus stem]
Maban: MABA aek, PL. ae "moon"   [NS *a- n. deriv. pref. plus stem]
Astab: Taman: TAMA ayid "moon"   [NS *a- n. deriv. pref. plus form *yet̪'
                                                         seen in Bertha "star" (stem plus
                                                         NSud *t̪ n. suff.]
Astab: Taman: TAMA koye "charcoal"   [NS *kʰ n. pref. plus stem]
Astab: PNub *iːk "fire"   [stem plus NS *kʰ pl. suff. (mass pl.)]
Kir-Abb: BERTHA ís'ù "star"   [stem plus NS *t̪' n. suff. (as in Tama
                                                         "moon" above]
Kir-Abb: Surmic: SWSurmic: MURLE iː "sun"
Kir-Abb: Surmic: MAJANG éːyén "moon"   [NS *a- n. deriv. pref. (in assim. form,
                                                         *a- > e- /#_ye) plus stem plus NS *n
                                                         n. suff.]

Possible Eastern Sahelian innovation: The derivation of a noun for a nighttime celestial object, by addition of the *t̪' deverbative attributive suffix to the verb root, is attested in Bertha and probably in Tama. Probable Sahelian innovation for "moon": Nilo-Saharan *a- attributive noun prefix plus stem, a shape appearing in both Maba and Majang reflexes with the meaning "moon," cannot be attributed to borrowing.

1522. *'yé   "country, locality"
CSud: PCS *'yé "locality"
PRub *e'j "land, ground" (IK kí'já-)   [IK: NS *kʰ n. pref. plus stem]

1523. *'yép   "to throw"
Koman: UDUK yípʰ "to throw"
KUNAMA ab- "to plow and sow"   [semantics: original meaning "to sow"
                                                         (i.e., to toss seed), extended to
                                                         whole process of tilling and then
                                                         sowing]
FOR jab- "to throw down, drop"
Kir-Abb: Daju: NYALA jeb- "to throw"
PRub *jɪb "to throw" (IK zéb- "to throw, hit"; SOO   [Ehret 1981b wrongly gives Rub *jɪɓ
  íb "to toss," íɓèθ "to winnow")   and Soo /iɓ/ and /iɓeθ/]

1524. *'yéːr   "to heat (by fire or sun)" [root 1521 plus NS *r iter.]
Sah: KANURI yìryìrá "to shine (of sun)"   [redup. stem plus NS *-a dispunc.]
Sah: KANURI yír "ideophone of blazing heat of
  sun"
Kir-Abb: NYIMANG irùn "morning"   [stem plus NS *n n. suff.]
Kir-Abb: PNil [*iːʀ "to smoke" (WNil: Luo *yir
  "smoke"; ENil: MAASAI -ir "to smoke (gourd)";
  SNil: Kalenjin *iːʀ "smoke": LOAN from lan-
  guage in which NS *e > i /#y_C (Koman?)]
Kir-Abb: Nil: ENil: MAASAI -yíér "to cook"
Rub: SOO ir "to cook, burn (tr.)"   [NS *'y > PRub *'j > SOO Ø /#_i]

Eastern Sahelian semantic innovation: A narrowing of the application of the simple verb to a particular kind of heating, namely cooking over a fire, is seen in the Maasai and Soo reflexes.

1525. *'yèːn   "to grasp and bring toward one"
CSud: PCS *'ye "to pick up"
KUNAMA en- "to milk"   [semantics: milking involves repeatedly
                                                        grasping and pulling teat]
Sah: KANURI yèn "to fish, scoop up"
Astab: Nub: DILING in "to weed"
Kir-Abb: Nil: PNil *yɛːn "to tie" (OCOLO yɛn "to   [semantics: see note to this root below]
  bandage, tie, imprison"; PENil *-yɛn "to tie"]
Rub: IK zɔt "chain"   [< *zɛɔt- < pre-rub *'jɛnt, stem plus
                                                        NS *tʰ n. suff. (PRub *'j > IK [z]
                                                        /#_V[+front]; regular NS *CVNC >
                                                        PRub *CVV₂C₂, where V = +front,
                                                        V₂ = +round, C₂ = -voice; seman-
                                                        tics: see note to this root below]

Eastern Sahelian semantic innovation: A shift from "grasp" to "put together, attach" is implied in the Western Nilotic and Rub reflexes cited here. The Astaboran reflex (in Diling) does not share in this shift, however, making this one of three instances where Rub and Kir-Abbaian appear closer related to each other than to Astaboran. See Chapter 4 for further discussion.

1526. *'yiː   "to be (in a place)"
Koman: Gumuz *iː "to stay in a place" (SESE iː "to   [presumed regular Gumuz outcome: NS
  live"; SAI, 'GOJJAM' i "to stand in a place")   *'y > *'j /#-V, where V = [-front], >
                                                        Ø, where V = [+front]; see roots
                                                        1513 and 1530 for [j] reflex]
Sah: Tubu -y- "to be (somewhere), exist"
FOR -i- "to be"
Maban: MABA -i- "to be"
Kir-Abb: BERTHA íːθ- "to put, set"   [stem plus NS *ṣ caus.]
Kir-Abb: NYIMANG t̪-ia "to lie down"   [NYIMANG t̪- def. marker plus stem
                                                        plus probably NS *-a dispunc.]
Kir-Abb: Surmic: DM: DIDINGA -i- "to sit"
Kir-Abb: Nil: SNil: NANDI i "to be"
Rub: IK [i- "to be (at), be present, be alive": LOAN
  from SNil (expected *i'j or *iz)]

Probable Kir-Abbaian semantic innovation: A shift in the concrete application of this verb from standing to sitting is overt in Didinga and implied in Bertha and probably underlies the Nyimang shift. The consonant *'y is reconstructed because it is required in the apparent derived root 1528.

1527. *'yím   "to produce sap, juice, etc."
Koman: UDUK yìmán "sap of trees, juice, the water   [stem plus NS *n n. suff.]
  or liquid of anything, as fruit"
CSud: PCS *'yi "beer"
KUNAMA im- "to squeeze, remove oil from a fruit,
  seed, etc."
Sah: KANURI yìm, yím "to soak through, filter
  through"

1528. *'yiːŋ   "to live, be alive" [root 1526 plus NS *ŋ punc.]
CSud: WCSud *'yi "person, human being"
Sah: KANURI yìn "to breathe"
SONGAY nììnè "nose"   [< *aniːŋ-, *an- prevocalic allomorph of
                                                        NS *a- n. pref., in regular Songay
                                                        shape *n-, plus stem, with progres-
                                                        sive nasal assim. (*ŋ < n /nV_V)]

Astab: Nub: Hill Nubian *iŋin "nose" (DILING iŋin,   [stem plus NS *n n. deriv. suff.]
    KADARU ijin, etc.)

Saharo-Sahelian semantic innovation: A shift of meaning of the verb from living to the characteristic action of being alive, breathing, is directly attested in the Kanuri reflex and indirectly in the Songay and Hill Nubian nouns. The Songay and Nubian nouns, however, must be considered independent nominal derivations because of their distinctive derivational morphologies.

1529. *'yó   "to grow old"
CSud: PCS *'yo "to grow old"
Kir-Abb: GAAM yóɔ́- "to grow old"
Kir-Abb: Nil: WNil: OCOLO yo(r) "to grow old"   [stem plus *r of uncertain origin]
Kir-Abb: Nil: WNil: OCOLO yu, PL. ywö̤t̤ "old,   [stem plus NS *w n./adj. suff.?]
    aged"

1530. *'yok'w   "horn"
Koman: Gumuz *juk'w- "horn"
CSud: ECS *'yo "horn"
Sah: DAZA yae, PL. yaga, yaa "horn"   [presumed Bodelean *yək- > Tibu *yag- but V correspondences have not yet been worked fully worked out for Tibu (Daza)]

Kir-Abb: proto-Daju *yax- "horn"

1531. *'yuɖ   "to turn one way and then the other"
Koman: UDUK yùɖùr kɪ̄ mɪ́s "to go backwards and   [stem plus NS *r iter.]
    forwards" (kɪ̄ "with"; mɪ́s "up")
CSud: PCS *ɔ'yu "knee"   [CSud *V- pref. (NS *o- n. deriv. pref.?) plus stem]
FOR irt- "to shake"   [stem plus NS *tʰ cont.]
Kir-Abb: Nil: ENil: TESO -yɪdayɪd "to wag"   [redup. stem as iter.]

Apparent Sahelian phonogical innovation: NS *u > *i /#y_d.

1532. *'yuk OR *'yukʰ OR *'yuk'   "to bear fruit; fruit"
CSud: PCS *'yu "to bear fruit"
CSud: PCS *'yu "fruit"
FOR dàùgàn, PL. kàùgà "husk"   [NS *a- attrib. n. deriv. pref. plus stem; semantics: "husk" is a common attribute of a fruit, seed, etc.]

Astab: Nub: DONGOLAWI ugud, ugut "bean"   [stem plus NSud t̤ n. suff.]
Kir-Abb: proto-Daju *yuke "seed"

Probable Eastern Sahelian semantic innovation: A shift in meaning from "fruit" to "seed" explains the Daju and Nubian outcomes (Nubian: "seed" > "bean").

1533. *a'y   "limb joint"
CSud: PCS *'ya "joint of the leg" (hip, thigh, etc.)
Sah: KANURI ší "foot/leg"   [< *ke:, NS *kʰ n. pref. plus stem]
SONGAY cè, PL. ciò "foot/leg"   [structure as in Kanuri reflex]
FOR kìì, PL. kìíŋó "elbow"   [structure as in Kanuri and Songay reflexes; semantics: see notes below]

Astab: Taman: TAMA ɪːya "thigh"   [possible CSud loanword; alternatively, stem plus NS *-ah n. deriv. suff. with consequent meaning shift to "thigh"]

Kir-Abb: NYIMANG áiyì ~ áijì "hand"
Kir-Abb: TEMEIN ninat̤, PL. kɛn "hand"   [stem remnant (-i- in sing., -ɛ- in pl.) plus NS *n n. suff. (*-ɛn), with TEMEIN *ŋ- . . . -at̤ sing. and *k- pl. markers]

Kir-Abb: Temein: JIRRU inek, PL. kɛŋ "hand"   [sing: stem plus NS *n n. suff. plus NS *k n. singul.; pl.: Jirru *k- pl. plus stem with *ŋ pl. substituted for final *n n. suff. seen in sing. shape]

Kir-Abb: proto-Daju *ande "arm"   [stem plus NS *n n. suff. plus *tʰ suff. as n. sing.]

Kir-Abb: Nil: PENil *káín- "hand/arm"   [NS *kʰ n. pref. plus stem plus NS *n n. suff.]

Kir-Abb: Nil: SNil: Kalenjin *aʀ "thigh"   [SNil *y > *ʀ /#(C)V_#, where V = [+ATR]; see also roots 410, 625, and 1487 for this sound shift]

Rub: IK a'j-ík "palms, soles" (suppl. pl.)   [stem plus NS *kʰ pl. marker]

Saharo-Sahelian morphological and semantic innovation: development of a coexisting root with the meaning "leg/foot" by adding the *kʰ noun prefix to the stem. This extended root apparently shifted in meaning to "knee" and thence to "elbow" in the evolution of the For language. Kir semantic innovation: shift to meaning "hand," with all but Nyimang adding the Nilo-Saharan *n noun suffix to the simple stem. The Western Rub root *an "hand/arm" does not belong in this set, despite its surface resemblance to Kir *a'yn, but does meet the phonological correspondence requirements of its membership under root 1554.

1534. *'á'yr   "palm of hand"   [root 1533 plus NS *r n. suff.]
Koman: Gumuz: DISOHA eːrɛ "hand"
FOR dààrù, PL. kààrù "bone"   [stem plus NS *-uh n. suff.]
FOR kaaru "nail, claw"   [NS *kʰ n. pref. plus stem plus NS *-uh n. suff.]

Maban: MABA karak, PL. karɲi "hand/arm"   [NS *kʰ n. pref. plus stem]
Astab: Nub: KADARU ér "sinew of foot"   [semantics: "palm" > "sole" > "sinew of foot"]

Astab: Nub: NOBIIN èddì "hand"   [*erdi, stem plus NSud *t̤ n. suff.]
Kir-Abb: Surmic: MAJANG aːri "hand"
Kir-Abb: Nil: PSNil *e(ː)ʀ "hand/arm"

PROTO-NILO-SAHARAN STEM-INITIAL *y or *'y

1535. *yù:K OR *'yù:K   "to drop abruptly (intr.)"   [K = k, kʰ, or k']
Sah: KANURI yùkkùr- "to fall"   [stem plus NS *r iter. (as cont.)]
Kir-Abb: Nil: WNil: OCOLO yuk "to sit down hard"

1536. *yù:pʰ OR *'yù:pʰ   "to pant"
Sah: KANURI wùfè "to pant, wheeze"
Kir-Abb: Nil: WNil: NAATH yup "to puff, pant"   [stem plus NS *'y ess.-act.]

1537. *àːy OR *àː'y   "mountain"
Koman: Sn Koman *ayaw "mountain" (UDUK àyò   [stem plus NS *w n. suff.; Uduk semantics: old NS linkage of "stone, rock" and "hill, mountain"]
    "stones for grinding"; OPO jao "mountain")

KUNAMA aya "mountain"

Kir-Abb: GAAM àài "dune, mound, termite hill; termite"

Kir-Abb: Nil: SNil: DATOGA hèːyèdà "hill"   [root *(y)aːy- plus SNil n. 2ndary suff.]

Kir-Abbaian semantic innovation: shift from "mountain" to smaller raised place, "hill, knoll, mound."

PROTO-NILO-SAHARAN STEM-INITIAL *h

1538. *ha OR *haː   "to ask for"
KUNAMA ha- "to entreat"
Sah: DAZA ha "to ask"
SONGAY hǎ "to ask"   [*haN, stem plus probably *ŋ punc.]

1539. *hǎɓ   "to gulp down"
Koman: GULE ʔàben "to bite"   [stem plus NS *n dur.?]
CSud: PCS *'a OR *'ɔ "to devour" (BALEDHA 'à "to eat (meat)")
FOR ba- "to drink"   [for same sound shift, *haB > *ba- in For, see also root 1540]

Astab: NARA habe "neck"
Rub: IK háb- "to be greedy"
Rub: IK [abuti- "to drink": LOAN (expected *háb-)]   [stem plus NS *tʰ cont. plus *-i itive]

1540. *hǎɓ OR *hǎƁ   "to take"
Koman: UDUK hāɓ "to carry water or liquid"
KUNAMA ab- "to conduct, escort"
Sah: KANURI háp "to lift up"
FOR bau- "to carry"   [stem plus NS *-uh ven.; see root 1539 above for same sound shift, *haB > *ba- in For]

Astab: Nub: DONGOLAWI ab "to catch (thrown or falling body)"

1541. *hǎɓùr   "to eat up"   [root 1539 plus NS *r iter.]
[metathesized stem]
Koman: UDUK hārūɓ "to sip noisily"
SONGAY háwrù "to sup; evening meal"   [stem plus NS *-uh n. suff., v. < n.]

1542. *háh   "to produce (fruit, growth, offspring)"
Koman: UDUK há' "to breed"
CSud: ECS *'a OR *'ɔ "to bear fruit"
KUNAMA hau- "to grow (of plants)"   [stem plus NS *w punc.]
SONGAY háy "to be born"   [stem plus NS *'y ess.-act.]
Rub: SOO a' "to ripen"   [Rub *h > SOO Ø /#_, > ' [?] /V_#]

1543. *hǎːkʰw   "to pick up (many things)"
KUNAMA aku- "to pick up scattered small things"
Kir-Abb: Nil: WNil: OCOLO yäk "to plunder"   [regular epenthetic OCOLO y < Ø /#_V]
Rub: IK hakwe- "to collect white ants"   [stem plus unexplained element -e-]

1544. *hǎk' OR *hǎːk'   "to avoid, do without"
KUNAMA aku- "to avoid, shun"
Rub: IK hak'ot- "to forget; to take the wrong way"   [stem plus NS *tʰ cont.]

1545. *hǎk' OR *hǎːk'   "to extend"
KUNAMA haka-, aka- "to broaden, enlarge"
Sah: KANURI [há "to stretch out (hand, foot); to unroll and stretch out (rope, cloth)": LOAN from extinct Songay-related language (NS *k' > Ø /V_)]
SONGAY hàỳ "to be long"   [stem plus NS *'y ess.-act.]
SONGAY háy-háy "to spread out to dry"   [Songay v. redup. as dur.]

1546. *hál   "long hair"
Koman: UDUK hālǎ' "beard, mane"   [stem plus NS *-Vh n. suff.]
Kir-Abb: GAAM álŋá "mane"   [stem plus NS *ŋ n. suff.]

The proposed derivation of root 1548, *hàlm- "grass stalk," from this root implies that in pre-proto-Nilo-Saharan this root would once have had some such meaning as "strand, strip."

1547. *hǎːl   "to wet"
Koman: UDUK à'ál "pool"   [NS *a- n. deriv. pref. plus stem]
Koman: UDUK hālās "to cover with water"; hālās āc'éš "to flood" (āc'éš "down")   [stem plus NS *θ intens. or *s prog.]
FOR dàálù "mud"   [FOR d- n. sing. pref. plus stem plus NS *-uh n. deriv. suff.]

Astab: NARA hala: "rain"   [stem plus NS *-Vh n. deriv. suff.]
Astab: Taman *kaːl "water" (TAMA kaal, MERARIT kara "water"; SUNGOR kal "rain")   [NS *kʰ n. pref. plus stem]

1548. *hàlm   "grass stalk"   [root 1546 plus NS *m n. suff.]
Koman: UDUK hálmíš "straw of sesame, sorghum, etc."   [stem plus NS *š n. suff.]
FOR dàlmáŋ, PL. kàlmà "leaf"
Astab: NARA halme "grass, hay"

1549. *hàm   "hair"
KUNAMA kima "hair, fur, wool"   [< *kihama, NS *kʰ n. pref. plus stem; *i(h)a > i /#k_Ca# is a regular Kunama sound shift (cf. root 1474)]

SONGAY hámní "hair"   [stem plus NS *n n. suff.]
FOR nàmsáŋ, nànsáŋ "feather"   [FOR n- n. sing. pref. plus stem plus NS *s and *ŋ n. suff.]

Astab: Nub: DILING amti, PL. ame "horse hair"
Kir-Abb: Surmic *am- "hair"

1550. *hám   "meat with bone, joint of meat"
SONGAY hám̀ "meat with bone"
Kir-Abb: GAAM am "bone"
Kir-Abb: C.Jebel: KELO əmma "bone"
Kir-Abb: NYIMANG ám(b)i, DINIK ááma "bone"
Kir-Abb: TEMEIN ɔmis, PL. kɔma "bone"
Kir-Abb: Surmic *amen, PL. *ame "bone"

The use of this root in the meaning "bone" is one of the diagnostic innovations of Kir-Abbaian.

1551. *hám   "to moisten"

KUNAMA amme- "to draw water"

Sah: KANURI hám "to cool off, heal"   [the derivation from "cool" of "heal" and other verbs for wellbeing is a common African semantic feature]

Astab: NARA hamma "moist"

Astab: Nub: NOBIIN ámán "water"   [stem plus NS *n n. suff.]

This set of reflexes shows that there is no need, as has widely been assumed, to propose that the Nobiin word for water originated as a Berber (Afroasiatic) loanword. Proto-Berber *aman nonetheless bears such a striking resemblance to the Nobiin form that the possibility of one language having borrowed from the other cannot be entirely ruled out either.

1552. *hám   "to gather food"

Koman: UDUK hām "to encircle in hunting"

CSud: PCS *'a "to cultivate"

SONGAY hàmà "sorghum"   [semantics: proposed earlier "food" in general, narrowed to sorghum as the staple food]

SONGAY hàmnì "flour"   [stem plus NS *n n. suff.; semantics: < Songay "sorghum" preceding]

FOR am- (jam- ?) "to eat"

Kir-Abb: Surmic *am "to eat"

Kir-Abb: PNil *am "to eat"

Apparent Sahelian semantic innovation: shift in meaning of the verb to the sense "to eat." The proposed semantics of the Songay reflexes imply this meaning change, which is explicit in the For and Kir-Abbaian reflexes.

1553. *hámp   "to be afraid"

KUNAMA abbare- "to be afraid"   [stem plus NS *r adj. or n. suff.; v. < earlier adj. or n.]

SONGAY hámbúrú "to be afraid"   [stem plus NS *r n. suff.; v. < earlier n.]

Rub: SOO ab "to be afraid"   [PRub *h > SOO Ø /#_]

1554. *hàn OR *hãn   "to grasp"

Koman: UDUK hān "to carry (of two carrying together)"

FOR *an- "to give"   [semantics: as in derivation of ENGLISH "give"]

Maban: MABA -(a)n- "to steal"

Maban: MIMI ani "prendre"

Astab: Nub: DILING and "to hold"   [stem plus NS *tʰ cont.]

Kir-Abb: C.Jebel: KELO aans- "to give"   [stem plus NS *ṣ caus., i.e., to cause (someone else) to hold]

Kir-Abb: NYIMANG aŋ(g)- "to put (pl. subj.)"   [stem plus NS *kʰ iter. as plurac.]

Rub: WN Rub *an "hand"   [PRub *h > Wn Rub Ø /#_]

Western Rub "hand" does not show the expected correspondences that would derive it from Kir *a'yn "hand" (see root 1533), but does meet the phonological requirements of cognation with this cognate set. Apparent Kir-Abbaian semantic innovation: shift of direction of action to away from speaker (Kelo "give," Nyimang "put").

1555. *háns   "fingers (suppl. pl.)"   [root 1554 plus NS *s n. deriv. suff.]

Maban: MABA as(al) "four"   [stem (plus NS *l n./adj. suff.)]

Maban: MASALIT as "four"

Kir-Abb: GAAM ás "hand"

Kir-Abb: BERTHA asiŋ "five"

Kir-Abb: proto-Daju *asɲ "arms/hands (suppl. pl.); ten"   [stem plus NS *ŋ n./adj. suff.] [stem plus Kir-Abb *ɲ pl. marker]

Kir-Abb: Surmic: SESurmic *as- "hand"

Kir-Abb: Nil: SNil: DATOGA gèːtî ndà "arm"   [root *kaːtin-, NS *kʰ n. pref. plus stem plus NS *n n. suff. (plus Datoga n. 2ndary suff. -da]

Kir-Abbaian semantic innovation: The use of this root in its simple stem shape as the basic word for the meaning "hand/arm" appears in both Gaam and Southeastern Surmic. The application of the root in counting took place at least twice, once in proto-Maban, where it came to mean "four" (i.e., the four fingers of one hand, less the thumb), and once in proto-Kir-Abbaian, as the number "five" (five fingers including thumb). Kir-Abbaian innovation: The development of the meaning "five" through the addition of the Nilo-Saharan noun/adjective suffix in *ŋ is attested directly in Bertha. It is indirectly evident in Daju, where *asɲ "ten" shows the early Kir-Abbaian plural in *ɲ, i.e., "(two) fives," a plural suffix that typically paired in early Kir-Abbaian with singulars in *ŋ, as is found in Bertha "five." A distinct innovated root for "five" then arose in proto-Kir (see root 113), in place of *hansiŋ from which *hansiɲ derives, and thus requiring the coining of *hansiɲ from *hansiŋ to have taken place earlier than proto-Kir, thus in the proto-Kir-Abbaian period.

1556. *háːns   "to put in order"

KUNAMA assi- "to improve, smooth, level"

SONGAY hànsè "to arrange"   [stem plus SONGAY -e ext. (proposed NS *a dispunc. plus NS *-i itive)]

Astab: Taman: TAMA aːs- "to measure, ascertain length, area, or volume of"

Kir-Abb: GAAM ássàn- "to fit, suit"   [stem plus NS *n dur.]

1557. *háːŋ   "to breathe"

CSud: PCS *'a OR *'o "to breathe"

Astab: PNub *aːŋ "to live" (NOBIIN áaŋ-, DONGOLAWI aːŋ, DILING aŋ)

Kir-Abb: BERTHA áːŋɔn- "to smell (tr.)"   [stem plus NS *n dur.]

Kir-Abb: Nil: ENil: PTung'a [*-yáŋ "to breath": LOAN, probably from early Rub-related language]

Kir-Abb: Nil: ENil: Lotuko-Maa *-káŋ- "homestead"   [*-k-aŋ-, NS *kʰ n. pref. plus stem; semantics: "to breathe" > "to live" > "dwell, reside," > n. for "dwelling place"]

PRub *ɪaŋ "to breathe" (IK ɪáŋ- "to rest")   [*i- v. class pref. plus stem; Ik semantics: cf. English "to catch one's breath, take a breather"]

Example of innovation of Astaboran and Kir-Abbaian counterindicated in Rub: The simple forms of the root in Nubian and Kir-Abbaian (the Bertha root is an extended shape preserving the earlier meaning) share a meaning shift from "to breathe" to "to live," with Lotuko-Maa showing a further underlying shift from "live," in the sense of being alive, to the sense "to live, dwell." For an apparently opposite course of semantic shift, see root 1526 and its derivative 1528.

1558. *hàr   "to flow, run (of liquid)"

SONGAY hàrgù "cold"   [stem plus NS *k adj. suff.; semantics: "wet" > "cold (of water)"]

Astab: Taman: TAMA arí ŋ, PL. árì ŋ "pool, river"   [sing.: stem plus *ŋ sing. suff.; pl.: stem plus *ŋ pl. suff.]

Kir-Abb: GAAM arad, PL. aralg "seep, spring" — [stem plus NSud *ł n. suff.]

Kir-Abb: NYIMANG áriŋè "water" — [stem plus NS *ŋ n. suff.]

Kir-Abb: PNil *ar "to flow" (SNil: Kalenjin *ar "überqueren, durchqueren"; PENil *-káré "river"; Ateker *-kar "pool"; PSNil *arın "river": Kalenjin *arın, DATOGA ɛ:n) — [PENil: NS *kʰ pref. plus stem; PSNil: stem plus NS *n n. suff.; Ateker *kʰ n. pref. plus stem; Lotuko-Maa apparent regular *R > *r /a_e# (see root 1287 for same outcome]

Rub: IK hár (hárí-) "diarrhea" — [stem plus NS *-ih n. deriv. suff.]

Rub: IK [karɛ "waterhole in river": LOAN from ENil language] — [structure as in PENil root]

The Tama and Nyimang reflexes may alternatively reflect a common Eastern Sahelian innovation of a noun meaning probably "pool of water" by addition of the Nilo-Saharan noun suffix in *ŋ.

1559. *hár "rain" [n. < v. root 1558 by tone shift]
FOR ara "rain" (B)
SONGAY hárí "water, rain" — [stem plus probably NS *-ih pl. suff. (as originally a mass pl.)]

Astab: Taman: TAMA arr "rain"

Astab: PNub *ar- "rain" (DONGOLAWI aru, KADARU árà "rain"; DILING are "sky, rain")

1560. *hâr OR *hâ:r "to be lacking"
Koman: UDUK hār "to lack"
KUNAMA ar- "to be insufficient, not enough"
Maban: MABA arak "eunuch" — [stem plus NS *-Vh n. deriv. suff. (*ar-a-k; -k is Maba n. sing. suff.]

Kir-Abb: C.Jebel: AKA ardɛs- "to hide" — [stem plus NS *ṭ caus. plus *s prog. (?); semantics: cause to be missing]

Other possible reconstructions: *hār or *hā:r.

1561. *ha:r "to burn (intr.), glow"
Sah: KANURI hár "ideophone of hottest part of hot season"
Maban: MABA artuk, PL. artu "embers" — [stem plus NS *tʰ n. suff.]
Astab: Nub: DONGOLAWI a:rk- "to burn, catch fire, light (intr.)" — [stem plus NS *k intens.]
Kir-Abb: DINIK arsa "sky"; arsək "lightning" — [stem plus NS *s n. suff. (plus NS *k singul.?)]
Kir-Abb: Surmic: S.Surmic: TIRMA arrɛso "warm" — [stem plus NS *s n./adj. suff.]
Kir-Abb: Nil: PSNil [*a:ra/*ara "red" (Kalenjin: POK a:ra "red (of cow or sheep)," SAPINY arra "red"; OMOTIK aran "red"): LOAN (expected *a:R)] — [stem plus NS *-Vh n./adj. suff.; Omotik reflex: plus NS *n modif. suff.]
Rub: IK [arír "flame": LOAN (expected *harir-)] — [stem plus NS *r n. suff.]

Proto-Southern Nilotic *aro:s "smoke" is a chance resemblance to this root, as is SOO ar "smoke." Both are loanwords from South Lowland Eastern Cushitic, the Southern Nilotic form perhaps borrowed indirectly from Rub and adding a Southern Nilotic suffix *-V:s.

1562. *háṭ' "to chew at length"
Koman: UDUK háṭ' "to eat leaves, greens, to chew greens, cloth, etc."
KUNAMA adawa "ruminant (adj.)"; adawa- "to chew cud" — [stem plus NS *w n./adj. suff.; v. by back-formation < adj.]

Astab: PNub *ajj- "to bite" — [probable *ad-j-, stem plus NS *ṭ' iter. intens., with assim. > *ajj-]

PRub [*ác'- "to chew": LOAN (expected *hac'-)]

1563. *hā:w "to flap, wave (limbs)"
Koman: UDUK hāwhāw "slashing quickly with foot or stick, like children slapping grasshoppers" — [adj./adv. by redup. stem]
KUNAMA awi-, awe- "to row; to swim"
Kir-Abb: TEMEIN iawɛ, PL. kawɛ "bird" — [stem plus NS *-eh or *y n. suff.]
Kir-Abb: proto-DAJU *awade, PL. *awiɲ "bird"
Kir-Abb: PNil wɛɲ/*wɪɲ "bird" (WNil: Luo *wɛɲ/*wɪɲ; PENil *-kwɛɲ-) — [generalization of pre-PNil pl. (as seen in Daju) as the new base form, with prePNil *awɛɲ > *wɛɲ by regular PNil *V > Ø /#_CVC; ENil: NS *kʰ n. pref. plus stem]

Kir innovation: derivation of a noun for "bird" from the verb; semantics: from the flapping of birds' wings in flying. Reconstruction of *w rather than *'w follows from the Maba reflex of the apparent derived root 1564.

1564. *ha:wah "limb, limb bone, long bone" [root 1563 plus NS *-Vh n. deriv. suff.]
Maban: MABA awaik, PL. awai "thigh" — [stem plus NS *y n. suff.]
Kir-Abb: TEMEIN awaṭ "leg" (suppl. pl.) — [stem plus TEMEIN -(i)ṭ n. pl. suff.]
Kir-Abb: Daju: SHATT awa, PL. awaju "breastbone"
Kir-Abb: Nil: PSNil *ka:w- "bone" — [NS *kʰ n. pref. plus stem]

1565. *há'w OR *há:'w "to be hot"
KUNAMA hawa "heat"; hawa- "to heat" — [v. as back-formation < n.]
KUNAMA hauka "sweat" — [stem plus NS *kʰ n. pl. suff. (as mass pl.)]

Sah: KANURI háu "ideophone of hottest part of hot season"
Astab: Nub: KADARU ó: "warm"
PRub *hab- "to be hot" (IK háb-)

1566. *há'wm OR *hâwm "belly"
CSud: PCS *'ɔ "belly" (BALEDHA 'ò)
SONGAY hùmù "navel"
Kir-Abb: TEMEIN ɔm "belly"
Kir-Abb: Surmic: MAJANG a:mt "belly" — [stem plus NS *tʰ n. suff.]

1567. háyṭ "person"
Astab: NARA hadi "skin" — [semantics: "person" > "body" > "skin"]
Astab: Taman *ayt "person" (TAMA ari, PL. ariŋ; at, PL. atir; MERARIT ɛr; SUNGOR at)
Astab: PNub *id "person" (NOBIIN íd; DILING id, PL. iri; KADARU íḍù; etc.)
Kir-Abb: Surmic *et "person"

1568. *hék' "to lie, tell a lie"
Koman: UDUK hék' . . . ā "to deceive" (ā "amid")
KUNAMA aku- "to lie"

1569. ***hɛ̀ʂ OR *hɛ̄ʂ** **"to move toward in order to get"**

Koman: UDUK hǎš "to send for"

KUNAMA eseme- "to reach up arms to catch   [stem plus NS *m iter. concis.]
something"

Kir-Abb: Nil: WNil: OCOLO yec "to help lift load to
the head of another"

Northern Sudanic semantic innovation: specialization of the meaning of the verb to reaching for
with the arms.

1570. **hɛ́w** **"to gather (tr.), place together"**

Koman: UDUK hāwūs "to pile or gather as of ref-   [stem plus NS *-uh ven. plus NS *s
use, rubbish, and make a heap of"   prog.]

KUNAMA ew- "to gather, pull off fruit"

Sah: KANURI háwú "to gather up together" (H)   [stem plus NS *-uh ven.]

FOR u- "to build fence"   [for the same For sound corresponden-
                                                    ces, see also root 1604]

SONGAY háw "to attach, fasten"

Sahelian semantic innovation: A shift of application of the verb from a loose gathering together of
items to putting things together by fastening or attaching them to each other can be seen in both the
Songay and For reflexes.

1571. ***hí** **"to obtain, take possession of"**

CSud: PCS *'i "to gain, get"

CSud: ECS *'i "owner"

KUNAMA iɲi- "to belong to"   [stem plus NS *ŋ punc.]

Sah: KANURI yí "to give"

SONGAY hí "to lend"

SONGAY hí ní "to be able"   [stem plus NS *n dur.; semantics: wide-
                                                     spread African derivation of "be
                                                     able" < "get"]

Kir-Abb: TEMEIN i: "hand, arm; handle"   [probable *hih, stem plus NS *-Vh. n.
                                                     deriv. suff., explains V length; se-
                                                     mantics: "get" > "hold (in hand)" ->
                                                     n. "hand; handle"]

Saharo-Sahelian semantic innovation: A shift in direction of transmittal of property, from the ob-
taining of possession to the passing of possession to another, appears in the derivationally unmodi-
fied verbs in Saharan and Songay. The derived forms in both Songay and Temein, nominal and
verbal, build on the original sense, however.

1572. ***hí OR *híh** **"to grind (grain)"**

CSud: PCS *'i "to crush (grain)"

KUNAMA i- "to grind, make flour"

1573. ***hínðāh** **"three"**

FOR iis "three"

SONGAY hínzà "three"

Astab: Taman: TAMA iši "three"

Astab: Taman: SUNGOR íca "three"

This is one of two early root words for "three" that can be reconstructed. This root is restricted to
the Sahelian tongues and so seems surely a Sahelian innovation, while the other (root 842) occurs
entirely outside Sahelian, except for its appearance in the Nubian group. Because of this one in-
consistency, it is possible that the two roots for awhile may have coexisted in early Sahelian lan-

guages, one as a counting form and the other as an adjectival, as can more certainly be argued fc
the matched roots for "one" (185, 776, and 829) and "two" (78 and 1287).

1574. ***hí:r** **"to circle, encircle, go round"**

KUNAMA hiri-, iri- "to circle; to limit, restrict, con-
fine"

SONGAY híirí "tornado"   [stem plus NS *-Vh n. deriv. suff.]

SONGAY hírdí, híddí "limit, boundary, border"   [stem plus NSud *ʈ n. suff.]

Astab: Nub: DONGOLAWI i:r "to make (rope) by
rolling between the hands"

Astab: Nub: DONGOLAWI iri "rope"   [stem plus NS *-Vh n. deriv. suff.]

Kir-Abb: Nil: ENil: TESO aɪ-ɪɾaɪr "to whirl"   [redup. stem as iter.]

Rub: SOO írìm "to revolve"   [stem plus NS *m iter. concis.; *h >
                                                     SOO Ø /#_]

Rub: Wn Rub *ir "house"   [semantics: reference to round shape of
                                                     house; *h > Wn Rub Ø /#_]

1575. ***hó:** **"to pluck, pick"**

Koman: UDUK hó "to pick okra, squash, beans,
etc.; to break off in sense of to pick"

CSud: PCS *'u "to remove, take away"

Rub: IK hóé- "to skin"   [stem plus undetermined IK suff. in *-e,
                                                     as also in 1543 above]

1576. ***hólk** **"shell, hard covering"**

SONGAY hóhólgú "shell, bark"   [partially redup. stem]

Kir-Abb: GAAM úllí "bivalve shell"   [proposed metathesized *okl- > assim.
                                                     *oll-, with regular Gaam V-raising
                                                     /_l]

Kir-Abb: Surmic: KWEGU úrkù "bark"

An alternative reconstruction *'wélk might be possible here also.

1577. ***hór** **"to increase"**

CSud: PCS *'o "to increase"

KUNAMA art- "to become much, increase, multi-   [stem plus probably NS *tʰ n./adj. suff.,
ply"; arta "much, many"   with v. as back-formation < n.]

KUNAMA hara-, ara- "to climb up, grow very tall
(of plants)"

Kir-Abb: GAAM ör- "to increase"

1578. ***hóŋg** **"to recline, lie"**

CSud: PCS *ngɔ "to be tired, worn out, old"

Sah: KANURI hángá "to straighten out" (H)   [stem plus NS *-a dispunc.; semantics:
                                                     lay flat > make level, even, hence
                                                     straight]

SONGAY hángásù "to lie on back, to lean back"   [stem plus NS *s prog. plus NS *-uh
                                                     ven.]

FOR ooŋ- "to sit"

Maban: MABA -oŋ- "to sit"

Maban: MABA -oŋun- "to fall"   [stem plus NS *n dur.]

Kir-Abb: Surmic: DM: MURLE oŋ "to sleep"

Kir-Abb: Nil: ENil: MAASAI ɔ́ŋátá "plain, flat   [stem plus NS *tʰ n. suff.]
country"

1579. *hùŋg "to bend (intr.)"

KUNAMA ugug- "to round" [redup. stem as dur./iter.]

FOR uŋ- "to lie down" [semantics: to bend down > lower one-self > lie down]

Astab: Nub: DONGOLAWI [huŋg- "to kneel": LOAN from language in which NS *h was maintained]

Kir-Abb: GAAM uu- "to bend, bow down" (< *ug-)

Kir-Abb: TEMEIN ŋɔngu "knee" [*an-, pre-V allomorph of NS *a- n. deriv. pref. plus stem]

Sahelian semantic innovation: A narrowing of the application of the verb to bending directed downward is evident in all the Sahelian attestations. Eastern Sahelian semantic innovation: A further specification of the meaning of the verb to the bending of the knees is apparent in all the Eastern Sahelian cases.

1580. *húŋk "to sniff (intr.)"

CSud: PCS *ngu "to smell (intr.)"

SONGAY hùŋgúm "to suffocate, smother" [stem plus NS *m iter. concis.]

Kir-Abb: C.Jebel: MOLO uŋj- "to smell" [probably < *uŋ-š-, stem plus NS *ş caus.]

Kir-Abb: proto-Daju *uuŋ- "to breathe"

1581. *hwèy "house"

SONGAY hù "house"

Kir-Abb: GAAM we "house"

Kir-Abb: proto-Daju *au(de) "place" [NS *a- n. deriv. pref. plus stem (plus Daju *-de n. sing. suff. < NS *tʰ)]

Kir-Abb: Nil: WNil: NAATH au "world" [NS *a- n. deriv. pref. plus stem]

PRub *au "homestead" (IK awá-, Pl. awik; SOO éù) [NS *a- n. deriv. pref. plus stem]

Rub: IK ho (hoé-, PL. hoík) "house"

Eastern Sahelian morphological cum semantic innovation: *ahwey (> *ahu), NS *a- attributive noun-forming prefix plus stem, originally meaning "homestead" and in pre-Western Nilotic shifting to collective sense, "neighborhood of homesteads," i.e., a district or country, and from there generalizing further to "world" in Naath of Western Nilotic.

1582. *hwèmp' "to burn low, smoulder"

Sah: KANURI wùmbàt "to scorch partially by fire" (H) [stem plus NS *-a dispunc. plus NS *ţ caus.]

Astab: NARA hibet (R), hɪbɪd (B) "ash" [stem plus NSud *ţ n. suff.]

Astab: PNub *obt- "ash" (KADARU ɔ̀ţţ̀è, etc.) [stem plus NSud *ţ n. suff.; for Nile Nubian *oburt- "ashes," see root 593]

Astab: Nub: DILING ob, PL. wab "warm, hot"

Rub: IK ɪɔ́ɓɔ́r- "to fry, roast (e.g., maize)" [*i- v. class pref. plus stem plus NS *r iter.]

Astaboran morphological cum semantic innovation: The derivation of a noun for "ash" by addition of the *ţ/*ţ' noun suffix to the verb stem is present in both the Nara and proto-Nubian nouns. The alternate Nile Nubian root *oburt- "ash" is parallel in format, surely reflecting an influence on its shape from proto-Nubian *obt-, but must be derived from a distinct older Nilo-Saharan root set *pud (see roots 593 and 594), which would have produced the shape *bur- in Nubian. The root *oburt- is most probably a Nobiin innovation, borrowed into Dongolawi as a replacement for proto-Nubian *obt-.

1583. *äh "me"

Koman: UDUK ä' "me" (accus. pron.)

Koman: KOMO -a << 1st person sing. subj. marker of v. >>

CSud: PCS *ma "I"

CSud: PCS *ama "we"

KUNAMA -a/-aa << 1st person sing./pl. obj. markers of v. >>

KUNAMA aŋa "mine"

FOR a- << 1st person sing. subj. marker of v. >>

FOR -ai- "us" (in loc. and poss. pron.)

[NS pron. root in *m (160) plus stem]

[CSud *a- pl. pref. of pl. pron. plus CSud *ma, 1st person sing. pron.]

[pl.: stem plus NS *a pron. pl. marker, as in CSud *ama "we"]

[stem plus NS *ŋ gen. marker]

[daiŋ, PL. kaiŋ "our": FOR no. markers plus stem *-a- plus *-ih pl. suff. plus FOR -ŋ gen. (NS *ŋ); daile "to/from us": same structure but with FOR -le loc.; see root 1374 for further discussion of FOR poss. and loc. marking]

Maban: MABA -a << 1st person sing. subj. marker of v. >>

Astab: PNub *-án "my, our"

[stem plus Saharo-Sahelian *na pron. gen. marker; applicability to both sing. and pl. reflects assimilation of NS *ánā "we (incl.)" into this affix]

Astab: Nub: MIDOB aadi "we (excl.)" [stem plus NS *ti indef. pron. stem (root 767) as also in Birkid 2nd person pronouns (see roots 1403 and 1600)]

Kir-Abb: GAAM -a << 1st person sing. subj. marker of v. >>

Kir-Abb: GAAM āān "I"

Kir-Abb: C.Jebel: KELO -á "me"

Kir-Abb: C.Jebel: KELO -á/-ná "my (pl. possessed)"/ "my (sing. possessed)"

Kir-Abb: BERTHA a "I" (short form)

Kir-Abb: TEMEIN ŋaŋ "I"

[< *agan; for structure, see root 410]

[2nd form: stem plus NS *n sing. marker]

[regular pattern of Temein personal pron.: *n- pref. plus underlying pron. root]

Kir-Abb: proto-Daju *a- << 1st person sing. subj. marker of v. >>

Kir-Abb: proto-Daju *ana(ŋga) "I"

[preserves proto-Kir form, as seen also in PNil below, plus *ŋga topic pron. marker (root 486), with V levelling to /a/ throughout; parallel formation to Daju *ini(ŋga) "you (sing.)" (root 280); this corrects Thelwall 1981, who gives *ag- for this root]

[see PNil entry below for structure]

Kir-Abb: Surmic: S.Surmic *ani, *ane "I"

Kir-Abb: Surmic: DM: MURLE -aŋ "us"

[stem plus NS *ŋ pl. suff. as also in equivalent DM 2nd person pl. pron., *-uŋ "you (pl. obj.)" (root 1403)]

Kir-Abb: PNil *a << 1st person sing. subj. marker of v. >>

Kir-Abb: PNil *ane:, *ani: "I"

[stem plus NS *ne dem. root (256) in ESud shape (*ney > *ne:, *ni:); see Surmic and Daju for other reflexes of this particular shape]

The independent form in Uduk and prefixed Kunama shape show this root to have begun as an accusative pronoun. The suffixation of the root as a singular subject marker in the Komo language suggests that is was separately innovated as a bound subject marker there and in Sahelian, where it was prefixed, in each case by derivation from this once free-standing pronoun. The older Nilo-Saharan first person singular bound form *-na, *-an apparently lasted into Eastern Sahelian times as well (see root 1599). Perhaps the two markers attached originally to different of the two proposed verb classes of Northern Sudanic (see Chapter 5). The root *ah forms the base of several other derived pronouns in Nilo-Saharan, notably roots 1584-1587. Kir innovation: derivation of a new independent first person pronoun *ane:, *ani:, by addition of the *ne demonstrative root (in its Eastern Sahelian shapes, for which see root 256 and the proto-Nilotic reflex just above), thus shifting it to nominative placement. The Gaam suffixation of *n, though seemingly parallel in appearance, is a development unique within the Jebel group to Gaam and is, moreover, a general Gaam morphological development that adds *-n noun suffix to all its subject pronouns. The actual earlier form of this pronoun was, in any case, *agan. The Temein form is probably also a distinct development, applying the Temein template *n-V-n of both the first and second person singular and the plural pronouns, in which V is the marker of person.

1584. *ăhăy "I" [root 1583 plus NS *y n. suff.]

Sah: ZAGHAWA ai "I"

SONGAY ááy "I"

Astab: NARA -e/-ek << 1st person sing. marker of v./1st person pl. marker of v. >>

[pl.: stem plus NS *kʰ pl. suff.]

Astab: NARA heiga "we"

[< *hayka < *ahayka, stem plus NS *kʰ pl. marker plus usual NARA -a pl. suff. of pl. pronouns]

Astab: PNub *ai "I" (NOBIIN ày)

Kir-Abb: West Jebel *Vgay "we"

[W.Jebel base *Vg- of pl. pron. (see root 410) plus stem]

Kir-Abb: GAAM -ǝyǝ, PL. -ǝyǝg "our"

[stem plus uncertain *-V marker of pl.]

Kir-Abb: C.Jebel: AKA ee "I"

Kir-Abb: C.Jebel: MOLO -i, KELO -e, -i "me"

Kir-Abb: NYIMANG ai, DINIK oi "I"

Kir-Abb: Surmic: DM *-ɛt "us"

[stem plus DM *t pl. suff.]

Kir-Abb: Nil: ENil: MAASAI ai/lai "my (fem.)"/"my (masc.)"

[*l- is Maa masc. marker]

Kir-Abb: Nil: SNil: Kalenjin *ɲɛ "my"

[< *ŋ-ɛ, Kalenjin pref. element of poss. pron. (NS *ŋ gen.) plus stem]

Rub: Wn Rub *ay "I"

1585. *ahiɬ "us (excl.)" [root 1583 plus *-iɬ pl. suff.]

Koman: Gumuz *aila "we (excl.)"

CSud: BALEDHA 1ɛ̂ "we (excl.)"

[pre-CSud *ahil > *ayl > *ɛl > PSC *lɛ by regular sound shifts; see affix 56 in Chap. 6 for same sound history]

This root can be attributed a non-nominative meaning because of its apparent derivation from the NS singular non-nominative first person *ah (root 1583).

1586. *kʰàh "I" [NS *kʰ n. particularizing pref. (affix 55) plus root 1583]

Koman: Sn Koman *akʰaʔ "I" (UDUK áhǎ'; KOMO aka)

[NS *a- n. deriv. pref. added to stem to produce canonical VCV pron. shape]

CSud: BALEDHA kɔ̀ "we (incl.)"

[< *kʰaw, stem plus NS *pl. in *w]

Sah: Bodelean *k << 1st person sing. marker >>

Sah: KANURI *ki "I"

[Cyffer 1981)

[pre-Kanuri reconstruction; stem remnant *k- plus *-i formative of all Kanuri pron. (probably dem. root 1468)]

FOR ká/kà "I"/"me"

Rub: IK ńk (ńcì-) "I"

[IK regular addition of *N- pref. to all 1st and 3rd person pron. (< NS *ŋga dem. root 486, used in Trans-Sahel as topical pron. formative; final -i by analogy to -i final of the other two Ik sing. pron. (see roots 51 and 907)]

See Chapter 8 for further discussion of the derivation of this root.

1587. *kʰahih   << **first person plural subordinate pronomial** >> [root 1586 plus NS *-ih pl.]

KUNAMA kime "we (dual)"

[stem plus general Kunama *-me suff. of pl. pron.; reduction of stem to *ki- with addition of suff. is regular; see roots 1474 and 1549 for other cases of this shift]

KUNAMA kiŋa "our (dual?)"

[stem plus KUNAMA -ŋa gen.; reduction of stem to *ki- as in preceding Kunama entry]

KUNAMA ka- << 1st person dual subj. marker >>

FOR kí/kì "we"/"us"

[an intermediate contraction of *kʰahih > *kʰey would explain the For V outcome]

FOR k- << 1st person pl. subj. marker >>

Maban: MABA ka- << 1st person pl. obj. marker >>

Kir-Abb: proto-Daju *k- IN *kon- "we (incl.)"

Kir-Abb: Daju: SILA -k << 1st person pl. subj. marker of v. >>

[see root 1374 for derivation]

Kir-Abb: Nil: SNil: Kalenjin *-kɪ- << 1st person pl. subj. marker of v. >>

Sahelian semantic and function innovation: development of general bound first person plural verb marker from the pronoun. The affixation of this marker then led to various reductions of the vowel quality and quantity in the different languages. The Kunama reduction of the root to /ki-/ in its independent subject and possessive pronouns, but not in its productive form as the dual subject marker of second person, reflects a wider sound change process in the language, by which *k- plus aCiC₂- or iCaC₂- > *kiC₂- where C = h or y (see Kunama entries in roots 1474 and 1549). The reductions of the root to /ki-/ in Sahelian instances can be understood as separate developments from that seen in Kunama.

1588. *ɛ̆h "her, him, it" (subordinate)

Koman: Sn Koman *har/*hapʰ/*hen "he"/"she"/"it"

[earlier *ɛhɛ, stem in recurrent old NS pattern *VCV, reduced in combined forms to *hɛ- > Sn Koman *ha-; "he": *hɛ- plus *r dem. (root 1244); "she": *hɛ-pʰ, stem plus reduced form of root seen in UDUK wŭpʰ "women" (root 1397); "it": *hɛ plus NS *ne dem. (root 255)]

Koman: KOMO -e << 3rd person sing. obj. marker of v. >>

CSud: ECS *'e << 3rd person sing. stem (usually in subordinate contexts) >>

[stem plus NS *y n. suff. (*ɛh > *'ɛ by regular pre-CSud shifts > *'ɛ-y > *'e]

FOR -e- "him, her, it" (in poss. and loc. pron.)

[deeŋ, PL. keeŋ "his, her, its": FOR no. markers plus stem plus FOR -ŋ gen. (NS *ŋ); deele "to/from him, her, it": structure as in poss. pron., but with FOR -le loc. in place of gen. marker; see root 1374 for further discussion]

SONGAY à "she, he, it"

[regular PNS *ɛ > SONGAY a]

SONGAY hèy "thing"

[stem plus NS *y n. suff.]

Kir-Abb: W.Jebel *een "she, he, it" (GAAM ē(n), etc.)

[see root 410 for structure]

Kir-Abb: GAAM -i "her, him"

Kir-Abb: C.Jebel *-e "his, her, its (pl. possessed)" (AKA -e, KELO -é)

Kir-Abb: Nil: WNil: NAATH kɛ "they"

[NS *kʰ pl. marker plus stem]

Kir-Abb: Nil: ENil: Ateker *ɛ << 3rd person sing. marker >>

The parallel forms of the independent third person singular pronouns in Central Sudanic and Western Jebel (stem plus the Nilo-Saharan nominal suffix in *y), appear to be separate developments because the Central Sudanic version is best explained as an adding of *y to the stem after the pre-proto-Central Sudanic conversions of all stems to CV shape.

1589. *kᵇɛh   "she, he, it"   [NS *kʰ particularizing pref. (affix 55) plus root 1588]

CSud:.PCS *kɛ << 3rd person sing. pron. (indef.?) >>

CSud: ECS *k- << 3rd person subj. marker of v. >>

Saharan *k << 3rd person element >>

[Cyffer 1981]

Sah: KANEMBU -ŋge "her, his, its"

[Bodolean *n- pref. of poss. pron. (NS *-na gen.) plus stem]

Kir-Abb: TEMEIN ŋaka "he, she, it"

[regular Temein sing. pron. pattern, *ŋVC(V), where VC(V) marks person; hence *ŋ- (probably NS *ne dem. root, 256) plus stem]

Kir-Abb: Nil: SNil: Kalenjin *-kV- << 3rd person sing. and pl. subj. marker of v. >>

Rub: SOO -kɛ << 3rd person sing. subj. marker >>

See root 1588 for parallel structure in the equivalent first person singular pronoun (discussed in Chapter 8).

1590. *nɛh   << third person singular (object?) pronoun >>
[*n pron. sing. affix (66) plus root 1588?]

CSud: PCS *nɛ "she, he, it"

Astab: Taman: MERARIT an/eniŋ "he, she, it"/ "they"

[sing. *anɛ, NS *a- n. deriv. pref. plus stem; pl.: sing. plus NS *ŋ pl. marker, with regressive V assim.]

Astab: PNub *-n << 3rd person sing. subj. marker of v. >>

Kir-Abb: BERTHA ŋine "he, she, it"

[*ŋ-inɛ, Sahelian topic pron. affix *ŋga (root 486, > *ŋ /#_Vn) plus stem, with fronting of *anɛ to *inɛ]

Kir-Abb: NYIMANG ɛn, DINIK an "he, she, it"

[< *anɛh, as in Taman shape]

Kir-Abb: Daju: SHATT nyV- << neuter 3rd person sing. v. marker >>

[stem in reduced shape *ne -> ny- /_V-]

Kir-Abb: Surmic: DM *-ne/*-nek << 3rd person sing./pl. marker of v. >>

[pl.: adds NS *kʰ pl. marker]

Kir-Abb: Nil: PNil *ine "he, she, it" (SNil: Elgon-Mau *ine; PAKOT, OMOTIK *ɲɛ; ENil: LOTU-KO iɲi)

[preservation of Kir shape *inɛ; Pakot, Omotik: palatalization of *in- > *ɲ-; Lotuko: progressive V height assim. with palatalization of medial *n]

Kir-Abb: Nil: PNil *nɪŋɛ "he, she, it" (ENil *nɪŋɛ; SNil: Datoga *niɲi)

[derivation as in Bertha (but with nasal metathesis); Datoga: progressive V height assim.; then *ŋ > *ɲ /i_i]

Eastern Sahelian innovation: *anɛh, Nilo-Saharan *a- noun deriving prefix plus stem, is seen in Merarit and the Nyimang forms. Kir-Abbaian innovation: development of *inɛ, by irregular fronting assimilation of *anɛh, found in Nilotic and attested indirectly in a second Kir-Abbaian innovation: *ŋinɛ, apparently the topic third person singular pronoun, with Bertha and Nilotic reflexes, attaching the Sahelian *ŋg- topicalizing prefix, in its regular Kir-Abbaian shape *ŋ-, to *inɛ. In proto-Nilotic this shape was metathesized to *ŋinɛ. The Daju bound third person markers may be a reduced form of either *anɛ or *inɛ.

1591. *ɔːh   "to call out"

Koman: Gumuz: SESE o' "to sing"

KUNAMA o- "to cheer up, play"

Sah: ZAGHAWA, BERTI a "mouth"

[probable *ɔah, stem plus NS *-ah n. deriv. suff.]

Astab: Nub: DONGOLAWI oː "to sing"

Kir-Abb: BERTHA (F) hɔ̀ː, (M) hùː "name"

[*kʰ-oːh, NS *kʰ n. pref. (> Bertha /h/) plus stem]

Kir-Abb: Surmic: DM *o- "to call"

Rub: IK óé- "to call"

[stem plus NS *-i itive with progressive assim. to preceding stem mid vowel]

PROTO-NILO-SAHARAN STEM-INITIAL Ø or *h

1592. *áːd OR *háːd "stem, stalk"

FOR áar "shaft (of spear); wood; firewood"

SONGAY káarí "stem (of water-lily)"

[NS *kʰ n. pref. plus stem]

SONGAY káarì "field in third year of cultivation"

[NS *kʰ n. pref. plus stem plus NS *-ih pl. suff.; semantics: stubble, hence field with the stubble of previous years' crops]

Rub: Wn Rub *ad "tree"

[NS *h > Wn Rub Ø /#_]

1593. *ɛl OR *hɛl "stem, stalk"

KUNAMA ela "plant, tree, wood, stick"

Sah: DAZA elle, TEDA illi "grass"

Astab: NARA kɛl "tree; medicine"

[NS *kʰ n. pref. plus stem]

Kir-Abb: Nil: WNil: OCOLO kɛl "outside of dura stalk"

[NS *kʰ n. pref. plus stem]

Apparent Eastern Sahelian morphological innovation: addition of the Nilo-Saharan *kʰ noun prefix to the stem.

1594. *ɔ̀:d OR *hɔ̀:d "path, road"

FOR dòrá, PL. koraŋa "road"

    [stem plus NS *-ah n. suff.]

Kir-Abb: Nil: SNil: Kalenjin *ɔ:r "path, road"

Rub: Wn Rub *od "path, road"

1595. *u:r OR *hu:r "intestinal tract"

Sah: ZAGHAWA uur "belly"

FOR dùrtóŋ, PL. kùrtòŋa "entrails"

    [stem plus NS *tʰ n. suff. plus *ŋ n. suff., probably originally as mass-pl.]

FOR kura "chest" (B)

    [NS *kʰ n. pref. plus stem plus NS *-ah n. suff.]

Astab: Taman: TAMA urok "guts"

    [stem plus NS *kʰ pl. marker as mass pl.]

Kir-Abb: Nyimang *kurwa "navel" (NYIMANG kwúrè, DINIK kúrwà)

    [NS *kʰ n. pref. plus stem plus NS *w n. suff.]

Kir-Abb: TEMEIN kuruɲit, PL. kuruɲ "bowel"

    [NS *kʰ n. pref. plus stem plus *ɲ n. suff., probably ESah *ɲ pl. marker as mass-pl.]

Possible Nuba Mountains innovation: addition of Nilo-Saharan *kʰ noun prefix.

1596. *ùṭ' OR *hùṭ' "to sit down"

KUNAMA ut- "to stay, dwell, wait, tarry"

Sah: KANURI wùs "to make camel kneel"

Maban: MABA -us- "to take mid-day nap"

Maban: MABA -usan- "to stop, delay"

    [stem plus NS *n dur.]

Astab: Nub: DONGOLAWI usk-ur- "to set, place, put, lay down"

    [stem plus NS *kʰ intr. plus Nubian *r caus.]

Astab: Nub: DILING uj-ir "to lay down"

    [stem plus Nubian *r caus.]

Kir-Abb: GAAM ɔsaaɫ "headrest, pillow, stool"

    [stem plus NS *-ah n. deriv. suff. plus NS *ɫ or *ṭ n. suff.]

Kir-Abb: proto-Daju *uc- "to sit, stay, remain"

Kir-Abb: Nil: WNil: OCOLO wuc "rectum"

    [semantics: what one sits on, i.e., buttocks > rectum]

PROTO-NILO-SAHARAN STEM-INITIAL *h or *'y

1597. *hìh OR *'yìh "to flow"

Koman: SW Koman *yìhi'y "water" (UDUK yì'í; KOMO 'i'i; OPO ji)

    [stem plus NS *'y n. deriv. suff.]

CSud: ECS *ɔ'i "to draw water"

    [CSud *V- pref. plus stem]

Sah: KANURI yì "to dissolve, melt"

Sah: DAZA, TEDA yi "water"

Astab: Taman: TAMA ay "blood"

    [NS *a- n. deriv. pref. plus stem]

Kir-Abb: GAAM ììg "milk"

    [stem plus NS *kʰ pl. (mass pl.)]

Kir-Abb: C.Jebel yiʔi "water" (AKA cii, MOLO si, KELO kiʔi)

    [KELO: NS *kʰ n. pref. plus stem; for other AKA c, MOLO s < *y, see roots 1418 and 1451]

Kir-Abb: TEMEIN kì "milk"

    [NS *kʰ pl. marker, in normal Temein pref. position, plus stem]

Kir-Abb: Nil: ENil: Maa *-(k)áí "rain, sky, God, above"

    [(NS *kʰ n. pref. plus) NS *a- n. deriv. pref. plus stem]

Kir-Abb: Nil: ENil: TESO -i "to bleed"

Southwest Koman innovation: derivation from the verb of a noun for "water," displacing proto-Koman *aya or *ayah (root 1470). Eastern Sahelian semantic innovation: A narrowing of the focus of the underlying verb to the outflow of fluid from the body is reflected in all the Eastern Sahelian attestations except the Maa noun. Kir-Abbaian innovation: The derivation from this verb of a noun for "milk" (what exudes from the breast or udder) is evident in Gaam and Temein, in both cases with addition of the Nilo-Saharan *kʰ plural marker as mass plural indicator (shifted in Temein to prefix position, as is normal in that language). The isolated Daza-Teda noun for "water" is most probably a separate derivation from that seen in Southern Koman, since the older Sudanic root for "water," *mbih, is present in the other primary branch of the Saharan group (see root 83). But without the tonal information for Teda and Daza reflexes, the issue cannot be fully resolved. The Central Jebel root, on the other hand, so closely replicates the Koman shape that it must be suspected to be a Koman loanword.

PROTO-NILO-SAHARAN VOWEL-ONLY STEMS

1598. *á: "wasp"

CSud: PCS *a "wasp"

FOR kia "mosquitoes"

    [FOR *k- pl. pref. (in *ki- allomorph) plus stem]

Kir-Abb: GAAM áâí "bee"

    [stem us NS *y n. suff.]

Kir-Abb: Nil: PWNil *kiec "bee"

    [*kʰia:y, NS *kʰ n. pref. plus stem plus NS *y n. suff. (> *c /_#) as also in Gaam]

Kir-Abbaian semantic innovation: shift of meaning to "bee" with addition of Nilo-Saharan *y noun suffix.

1599. *-án, *na- << marker of first person singular >>

Koman: KOMO -na << 1st person sing. subj. marker of v. >>

    [this is one of a set of three 1st person sing. markers used in Komo with different verbs]

Koman: GULE ánúúk "we (excl.)"

KUNAMA -na, na- << 1st person sing. subj. marker of v. >>

    [stem plus NS *kʰ pl. suff.]

Astab: Taman *n- << 1st person sing. and pl. marker of v. >>

Kir-Abb: Surmic: DM *-na/*-nak << 1st person sing./pl. marker of v. >>

    [pl.: stem plus NS *kʰ pl. marker]

This morpheme is included in this section not because it meets the criterion of a vowel-only root, but because as a bound form in PNS it does not really fit anywhere else in a dictionary otherwise comprised of roots. It was included, however, because it can be argued to have once been an independent pronoun *ana in pre-proto-Nilo-Saharan. But by proto-Nilo-Saharan times, or so the evidence uniformly indicates, it had become a bound form (see discussion of pre-proto-Nilo-Saharan pronoun history in Chapter 8). In the shape *-na or *na-, it lasted as a marker of first person singular subject down to proto-Eastern Sahelian (see Taman and Surmic reflexes), although the additional first person singular marker *a- (see root 1583) may have begun to supplant it already at the Sahelian stage. Possibly at first the two markers were used each with verbs of different of the two proposed verb classes of Northern Sudanic (see note to root 1583 on this point). In Western Astaboran the *na- marker can be proposed to have fallen together with a closely resemblant bound form derived from the proto-Nilo-Saharan pronoun for "we (inclusive)" (root 279), hence the identity of the singular and plural verb markers in Taman. The Kir independent first person sin-

gular pronoun *ane, *ani is a separately derivable form, traceable to a different early Nilo-Saharan first person root (see 1583 above).

1600. *í   "you (sing.)" (subordinate pron.)
Koman: UDUK -i << imperative marker >>
Koman: KOMO -i << 2nd person sing. subj. marker of v. >>
CSud: PCS *i- << 2nd person sing. marker >>
CSud: Bongo-Bagirmi *i OR *yi "you (sing.)"
Sah: KANURI -í, -é << imperative sing. marker >>   [2nd shape: < *ai, for which see root 1601]

FOR -ii- "you (sing.)" (in loc. and poss. pron.)   [diiŋ, PL. kiiŋ "your (sing.)": FOR no. markers plus stem plus FOR -ŋ gen. (NS *ŋ); diile "to/from you": structure as in poss. pron., but with FOR -le loc. in place of gen. marker]

Astab: Taman *i(i) "you (sing.)" (TAMA, MERARIT i, SUNGOR ii)
Astab: Taman: MERARIT iŋ "you (pl.)"   [stem plus NS *ŋ pl. marker]
Astab: Nub: DILING -i "your"
Astab: Nub: DILING -i << imperative sing. >> (in some verbs)
Astab: Nub: BIRKID idi "you (sing.)"   [stem plus dem. root 767; see also Birkid "you (pl)" in root 1403 for parallel structure]
    [1st shape: < *ai, root 1601]

Kir-Abb: GAAM -ə, -i << sing. imperative marker of v. >>
Kir-Abb: NYIMANG, DINIK i "you (sing.)"
Kir-Abb: proto-Daju *i << 2nd person subj. marker of v. >>
Kir-Abb: PNil *i << 2nd person marker >>
Kir-Abb: Nil: ENil: PTung'a *iy- "you (sing.)" (Ateker *iyo; Lotuko-Maa *iyye)   [stem plus possibly NS *y- dem. root (1468); but *-y- may be epenthetic result of nominalization by addition of V suff.]

1601. *ái   "you (sing. obj.)"   [NS *a- n. deriv. pref. plus root 1600]
Koman: Sn Koman *ai "you (sing.)" (UDUK é, etc.)
Koman: KOMO -ai, -e << 2nd person sing. obj. marker of v. >>
CSud: PCS *e- << 2nd person sing. marker >>
CSud: PCS *-me "you (sing.)"   [*m-ai, NS *m dem. pron. base (root 160) plus stem; see root 1583 for parallel structure of CSud 1st person sing. pron.]

CSud: PCS *ame "you (pl.)"   [*a-m-ai, NS *a pl. of pron. plus NS *m dem. pron. base (root 160) plus stem; see 1583 for parallel structure of CSud 1st person pl. pron.]

KUNAMA -e/-ee << 2nd person sing./pl. obj. markers of v. >>   [pl.: proposed stem plus NS *a pron. pl. marker; see also Kunama entries in roots 1493 and 1583 for same pl. feature]

KUNAMA eme "you (pl.)"   [*ai-me, stem plus *-me suff. (root 160) of all Kunama pl. pron.]
KUNAMA emme "you (dual)"   [*ai-C-me, stem plus assim. suff. (in *n?) plus *-me suff. (root 160) of all Kunama pl. pron.; same pattern in 3rd person dual (see root 1493)]

KUNAMA eŋa "yours (sing.)"   [*ai-ŋa, stem plus NS *ŋ gen. marker]
Sah: KANURI -é, -í << imperative sing. marker >>   [2nd shape: see root 1600]
Sah: Tubu: DAZA ntai "you (sing.)"   [Saharan pron. base plus stem]
Maban: Maba-Masalit *kʰái "you (pl.)" (MABA káŋ, MASALIT kíi)   [NS *kʰ pl. marker plus stem; Maba adds *ŋ suff. (probably NS *ŋ pl.) found on all Maba pl. pron.]

Astab: NARA -e, -a << 2nd person sing. subj. marker of v. >>
Astab: Taman *aito << negative imperative >>   [stem plus NS v. negative in *T (affix 114)]

Astab: PNub *air "you (sing.)" (NOBIIN ir, DONGOLAWI ɛr, KADARU ár, etc.)   [stem plus *r base (dem. root 1244) of all Nubian pron. except 1st person sing.]

Astab: Nub: NOBIIN -in "your (sing.)"   [< OLD NUBIAN ein, *ai plus Nubian *-n gen. of poss. pron.; NOT < PNS *ini "you (sing.)" (root 280)]

Kir-Abb: GAAM -ə, -i << sing. imperative marker of v. >>   [for 2nd shape, see root 1600]
Kir-Abb: NYIMANG -ei << sing. imperative marker of v. >>
Rub: IK -e << imperative marker of v. >>

The Komo and Kunama reflexes show that this root began as an accusative pronoun, a conclusion reconfirmed by the fact that its applications as a nominative pronoun, except in certain Koman languages, are accompanied by additional affixations. Saharo-Sahelian innovation: This root also took on a further function, probably at the Saharo-Sahelian stage, as a singular imperative suffix.

1602. *aina   "you (sing.)"   [root 1601 plus NS *n n. suff.]
Koman: KOMO aina "you (sing.)"
Koman: GULE aana "you (sing.)"
KUNAMA ena "you (sing.)"

SUPPLEMENTARY ROOTS

1603. *î:w   "to move (tr.)"
CSud: PCS *wi "to move (tr.)
KUNAMA u- "to wear"   ["move (tr.)" > "carry" > "wear"; derivation of "wear" < "carry" is widely found in world's languages, e.g., GERMAN tragen]

FOR uoŋ "herder" (B)   [stem plus NS *ŋ n. suff.]
FOR dùòŋ "herding" (B: "grazing ground")   [FOR d- n. sing. pref. plus stem plus NS *ŋ n. suff.]

Astab: Nub: DONGOLAWI i:w- "to herd"
Astab: Nub: DONGOLAWI i:wil "herder"   [stem plus NS *l or *ļ n. suff.]
Rub: IK iw- "to send"

Sahelian semantic innovation: A shift from "to move (tr.)" in general to "to send" is overt in the Rub reflex and underlies the more specialized meaning in For and Nubian (i.e., "to send (animals out to pasture)" > "to herd"). This further shared meaning shift could be taken to show that For and Nubian form a closer related group. But more probably it is another instance of ancient areal influences in the Jebel Marra region, dating prior to the spread of the Nubian languages east from Darfur to the Nile (see note to root 1055 for more on this idea).

1604. *hɛ́w "cow, head of cattle"

FOR úú, PL. kúú "cow, head of cattle"
[see root 1570 for the same For sound shift pattern]

SONGAY háw "cow" (generic)

Rub: IK eúz "big buffalo"
[assim. form of *a- attrib. n. pref. (*a > *ɛ /_CɛC) plus stem plus NS *'y n. suff. (*ɛ-hɛ́w-'y > *e-ú-z by regular Ik sound shifts and vowel harmony; semantics: animal with attributes of, i.e., resembling cow]

This noun for "cow" might conceivably be a derivative of the verb root 1570 in its original sense "to gather (tr.)." Such a history would be possible if the noun originated as a collective term, referring at first to a herd, i.e., cattle deliberately gathered together, and only subsequently developed the singular meaning seen here. The Ik meaning is in any case secondary, derived via the addition of two derivational affixes to the simple stem.

1605. *ɲíːr "to twist, turn, bend (intr.)"

Koman: UDUK nyír "to twist, as of rope; to take turns, change off"

CSud: ECS *ndri "to move in winding fashion"

Kir-Abb: Nil: SNil: Kalenjin *ɲiːʀ "to bend the bow"

Rub: SOO ɲiran "to hunch up, stretch"
[stem plus NS *n dur.; semantics: to twist or bend one's body]

1606. *ɲiːrih "cotton" [verb root 1605 plus NS *-Vh attributive noun-deriving suff.]

FOR ɲiri "cotton"

Kir-Abb: Daju: proto-Daju *ɲiRi- "cotton"

Semantics: The underlying reference here is surely to the twisting or spinning of cotton fibers into thread. This derivation thus arose at a time when cotton, an indigenous sudanic plant, had begun to be or was already being used in weaving in at least some of the eastern parts of the sudan belt of Africa.

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